3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.10 Two CREVS trains shall be OPERABLE.

----------NOTE----------
The control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, and 4, [5, and 6],
[During movement of [recently] irradiated fuel assemblies].

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREVS train inoperable for reasons other than Condition B.	A.1 Restore CREVS train to OPERABLE status.	7 days
B. ~~Two~~One or more CREVS trains inoperable due to inoperable ~~control room~~ CRE boundary in MODE 1, 2, 3, or 4.	B.1 Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. AND B.~~1~~3 Restore ~~control room~~ CRE boundary to OPERABLE status.	Immediately 24 hours 60 days ~~24 hours~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. [Required Action and associated Completion Time of Condition A not met [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	D.1 ----------NOTE---------- Place in emergency mode if automatic transfer to emergency mode inoperable. ---------- Place OPERABLE CREVS train in emergency mode. OR D.2 Suspend movement of [recently] irradiated fuel assemblies.	 Immediately Immediately]
E. [Two CREVS trains inoperable [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies. OR One or more CREVS trains inoperable due to an inoperable CRE boundary [in Mode 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	E.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately]

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two CREVS trains inoperable during MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREVS train for [≥ 10 continuous hours with the heaters operating or (for system without heaters) ≥ 15 minutes].	31 days
SR 3.7.10.2	Perform required CREVS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]
SR 3.7.10.3	Verify [each CREVS train actuates] [or the control room isolates] on an actual or simulated actuation signal.	[18] months
~~SR 3.7.10.4~~	~~Verify one CREVS train can maintain a positive pressure of ≥ [0.125] inches water gauge relative to the adjacent [area] during the [pressurization] mode of operation at a flow rate of ≤ [3300] cfm.~~	~~[18] months on a STAGGERED TEST BASIS~~
SR 3.7.10.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program	In accordance with the Control Room Envelope Habitability Program
SR 3.7.10.5	[Verify the system makeup flow rate is ≥ [270] and ≤ [330] cfm when supplying the the control room with outside air.	[18] months]

5.5 Programs and Manuals

5.5.16 Containment Leakage Rate Testing Program (continued)

e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.17 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, based on [the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer] including the following:

a. Actions to restore battery cells with float voltage < [2.13] V, and

b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

5.5.18 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented in accordance with the guidelines contained in Regulatory Guide 1.196, “Control Room Habitability at Light-Water Nuclear Power Reactors,” Revision 0, May 2003, Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and Regulatory Guide 1.78, “Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release,” Revision 1, December 2001.

[The following are exceptions to Regulatory Guide 1.196, Revision 0:

1. ; and]

[The following are exceptions to Regulatory Guide 1.197, Revision 0:

1. ; and]

[The following are exceptions to Regulatory Guide 1.78, Revision 1:

1. ; and]

5.5 Programs and Manuals

5.5.18 Control Room Envelope Habitability Program (continued)

The CRE Habitability Program shall ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Ventilation System (CREVS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for assessing CRE habitability at the Frequencies specified in Regulatory Guide 1.197, Revision 0.

d. Requirements for determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Regulatory Guide 1.197, Revision 0.

e. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREVS, operating at the flow rate required by the VFTP, at a Frequency of [18] months on a STAGGERED TEST BASIS. The results shall be trended and compared to the pressure measurements at all locations taken during the previous CRE inleakage testing. These evaluations shall be used as part of an assessment of the CRE boundary between CRE inleakage tests.

f. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph d. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemical and smoke challenges must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

5.5 Programs and Manuals

5.5.18 Control Room Envelope Habitability Program (continued)

g. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c, d, and e, respectively.

B 3.7 PLANT SYSTEMS

B 3.7.10 Control Room Emergency Ventilation System (CREVS)

BASES

BACKGROUND

The CREVS provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. ~~[chemicals, or toxic gas].~~

The CREVS consists of two independent, redundant trains that recirculate and filter the air in the control room envelope (CRE) and a CRE boundary that limits the inleakage of unfiltered air. ~~redundant, fan filter assemblies.~~ Each CREVS ~~filter~~ train consists of a roughing filter, a water condensing unit, a high efficiency particulate air (HEPA) filter, and a charcoal filter for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system, ~~train consists of a roughing filter, a high efficiency particulate air (HEPA) filter, and a charcoal filter.~~

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit for normal and accident conditions. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected for normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

The CREVS is an emergency system. Upon receipt of the activating signal(s), the normal CRE ~~control room~~ ventilation system is automatically shut down and the CREVS can be manually started. The roughing filters and water condensing units remove any large particles in the air, and any entrained water droplets present, to prevent excessive loading of the HEPA and charcoal filters.

A single CREVS train operating at a flow rate of ≤ [3300] cfm will pressurize the CRE ~~control room with a 1.5 ft^2 LEAKAGE area~~ to about 1/8 inch water gauge relative to all external areas adjacent to the CRE boundary. The CREVS operation in maintaining the CRE habitable is discussed in the FSAR, Section [9.4] (Ref. 1).

BASES

BACKGROUND (continued)

The CREVS is designed to maintain a habitable environment in the CRE ~~control room~~ for 30 days of continuous occupancy after a Design Basis Accident (DBA), without exceeding a [5 rem whole body dose or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)].

APPLICABLE SAFETY ANALYSES

The CREVS components are arranged in redundant safety related ventilation trains. The location of components and ducting within the ~~control room envelope~~ CRE ensures an adequate supply of filtered air to all areas requiring access.

The CREVS provides airborne radiological protection for CRE occupants ~~the control room operators~~ as demonstrated by the CRE occupant ~~control room accident~~ dose analyses for the most limiting design basis ~~loss of coolant~~ accident fission product release presented in the FSAR, Chapter [15] (Ref. 2).

The worst case single active failure of a CREVS component, assuming a loss of offsite power, does not impair the ability of the system to perform its design function.

[For this unit, there are no sources of toxic gases or chemicals that could be released to affect CRE ~~control room~~ habitability.]

The CREVS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two independent and redundant CREVS trains are required to be OPERABLE to ensure that at least one is available if a single active failure disables the other train. Total CREVS system failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in exceeding a dose of ~~5 rem to the control room operators~~ [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE] to CRE occupants in the event of a large radioactive release.

~~The~~ Each CREVS train is considered OPERABLE when the individual components necessary to ~~control operator~~ limit CRE occupant exposure are OPERABLE ~~in both trains~~. A CREVS train is considered OPERABLE when the associated:

a. Fan is OPERABLE,

b. HEPA filter and charcoal absorber are not excessively restricting flow, and are capable of performing their filtration functions, and

BASES

LCO (continued)

c. Heater, demister, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

~~In addition, the control room boundary, including the integrity of the walls, floors, ceilings, ductwork, and access doors, must be maintained within the assumptions of the design analysis.~~

In order for the CREVS trains to be considered OPERABLE, the CRE boundary must be maintained such that CRE occupant dose from a large radioactive release does not exceed the calculated dose of the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from hazardous chemicals and smoke.

The LCO is modified by a Note allowing the CRE~~control room~~ boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with operators in the CRE~~control room~~. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE~~control room~~ isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, ~~and~~ 4, [5, and 6,] and during movement of [recently] irradiated fuel assemblies, the CREVS must be OPERABLE to ensure that the CRE~~control room~~ will remain habitable during and following a DBA.

During movement of [recently] irradiated fuel assemblies, the CREVS must be OPERABLE to cope with a release due to a fuel handling accident [involving handling recently irradiated fuel. Due to radioactive decay, CREVS is only required to mitigate fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)].

BASES

ACTIONS

A.1

With one CREVS train inoperable, for reasons other than an inoperable CRE boundary, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CREVS train is adequate to perform the control room radiation protection function. However, the overall reliability is reduced because a failure in the OPERABLE CREVS train could result in loss of CREVS function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and ability of the remaining train to provide the required capability.

~~B.1~~

~~REVIEWER'S NOTE~~
~~Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.~~

~~If the control room boundary is inoperable in MODE 1, 2, 3, or 4, the CREVS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary.~~

B.1, B.2 and B.3

If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE]), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is considered inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 60 days.

BASES

ACTIONS (continued)

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. The mitigating actions should also address maintaining temperature and relative humidity within limits, and physical security. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 60 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. The 60 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

C.1 and C.2

In MODE 1, 2, 3, or 4, if the inoperable CREVS train or the CRE ~~control room~~ boundary cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes accident risk ~~in which the LCO does not apply~~. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

[D.1 and D.2

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, if the inoperable CREVS train cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CREVS train must immediately be placed in the emergency mode. This action ensures that the remaining train is OPERABLE, that no failures

BASES

ACTIONS (continued)

preventing automatic actuation will occur, and that any active failure will be readily detected. ~~Required Action D.1 is modified by a Note indicating to place the system in the emergency mode if automatic transfer to emergency mode is inoperable.~~

An alternative to Required Action D.1 is to immediately suspend activities that could release radioactivity that might require isolation of the CRE ~~control room~~. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.]

Required Action D.1 is modified by a Note indicating to place the system in the emergency mode if automatic transfer to emergency mode is inoperable.

[E.1

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, when two CREVS trains are inoperable or with one or more CREVS trains inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that could release radioactivity that might require isolation of the CRE ~~control room~~. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.]

F.1

If both CREVS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable CRE ~~control room~~ boundary (i.e., Condition B), the CREVS may not be capable of performing the intended function and the unit is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not severe, testing each train once every month adequately checks this system. Monthly heater operations dry out any moisture that has accumulated in the charcoal because of humidity in the ambient air. [Systems with heaters must be operated for ≥ 10 continuous hours with the heaters energized. Systems without heaters need only be

BASES

SURVEILLANCE REQUIREMENTS (continued)

operated for ≥ 15 minutes to demonstrate the function of the system.] The 31 day Frequency is based on the known reliability of the equipment and the two train redundancy available.

SR 3.7.10.2

This SR verifies that the required CREVS testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing HEPA filter performance, charcoal absorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal. Specific test frequencies and additional information are discussed in detail in the [VFTP].

SR 3.7.10.3

This SR verifies that [each CREVS train starts] [or the control room isolates] and operates on an actual or simulated actuation signal. The Frequency of [18] months is based on industry operating experience and is consistent with the typical refueling cycle. ~~The Frequency of [18] months is consistent with that specified in Reference 3.~~

SR 3.7.10.4

~~This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of the potentially contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas, is periodically tested to verify that the CREVS is functioning properly. During the emergency mode of operation, the CREVS is designed to pressurize the control room ≥ [0.125] inches water gauge positive pressure, with respect to adjacent areas, to prevent unfiltered inleakage. The CREVS is designed to maintain this positive pressure with one train at a flow rate of ≤ [3300] cfm. This value includes [300] cfm of outside air. The Frequency of [18] months on a STAGGERED TEST BASIS is consistent with industry practice and other filtration SRs.~~

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the CRE Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA

BASES

SURVEILLANCE REQUIREMENTS (continued)

consequences is no more than [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE] and the CRE occupants are protected from hazardous chemicals and smoke. The CRE boundary is considered OPERABLE when unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Mitigating actions, or compensatory measures, are discussed in Regulatory Guide 1.196, Section 2.7.3, (Ref. 3) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 4). Temporary analytical methods may also be used as compensatory measures (Ref. 5). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

SR 3.7.10.5

This SR verifies the CREVS can supply the CRE with outside air to meet the design requirement. The Frequency of [18] months is consistent with industry practice and other filtration SRs.

REFERENCES

1. FSAR, Section [9.4].

2. FSAR, Chapter [15].

3. Regulatory Guide 1.196 ~~1.52, Rev. [2]~~.

4. NEI 99-03, "Control Room Habitability Assessment," March 2003 ~~NUREG-0800, Section 6.4, Rev. 2, July 1981.~~

5. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2005, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694).

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Filtration System (CREFS)

LCO 3.7.10 Two CREFS trains shall be OPERABLE.

----------NOTE----------
The control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, [5, and 6],
During movement of [recently] irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREFS train inoperable for reasons other than Condition B.	A.1 Restore CREFS train to OPERABLE status.	7 days
B. ~~Two~~One or more CREFS trains inoperable due to inoperable ~~control room~~ CRE boundary in MODE 1, 2, 3, or 4.	B.1 Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. AND B.~~1~~3 Restore ~~control room~~ CRE boundary to OPERABLE status.	Immediately 24 hours 60 days ~~24 hours~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. Required Action and associated Completion Time of Condition A not met [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	D.1 ----------NOTE---------- [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] ---------- Place OPERABLE CREFS train in emergency mode. OR D.2 Suspend movement of [recently] irradiated fuel assemblies.	 Immediately Immediately
E. Two CREFS trains inoperable [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies. OR One or more CREFS trains inoperable due to an inoperable CRE boundary [in Mode 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	E.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two CREFS trains inoperable during MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREFS train for [≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.7.10.2	Perform required CREFS filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with [VFTP]
SR 3.7.10.3	Verify each CREFS train actuates on an actual or simulated actuation signal.	[18] months
~~SR 3.7.10.4~~	~~Verify one CREFS train can maintain a positive pressure of ≥ [0.125] inches water gauge, relative to the adjacent [turbine building] during the pressurization mode of operation at a makeup flow rate of ≤ [3000] cfm.~~	~~[18] months on a STAGGERED TEST BASIS~~
SR 3.7.10.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program	In accordance with the Control Room Envelope Habitability Program

5.5 Programs and Manuals

5.5.16 Containment Leakage Rate Testing Program (continued)

e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.17 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, based on [the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer] including the following:

a. Actions to restore battery cells with float voltage < [2.13] V, and

b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

5.5.18 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented in accordance with the guidelines contained in Regulatory Guide 1.196, “Control Room Habitability at Light-Water Nuclear Power Reactors,” Revision 0, May 2003, Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and Regulatory Guide 1.78, “Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release,” Revision 1, December 2001.

[The following are exceptions to Regulatory Guide 1.196, Revision 0:

1. ; and]

[The following are exceptions to Regulatory Guide 1.197, Revision 0:

1. ; and]

[The following are exceptions to Regulatory Guide 1.78, Revision 1:

1. ; and]

5.5 Programs and Manuals

5.5.18 Control Room Envelope Habitability Program (continued)

The CRE Habitability Program shall ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Filtration System (CREFS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for assessing CRE habitability at the Frequencies specified in Regulatory Guide 1.197, Revision 0.

d. Requirements for determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Regulatory Guide 1.197, Revision 0.

e. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREFS, operating at the flow rate required by the VFTP, at a Frequency of [18] months on a STAGGERED TEST BASIS. The results shall be trended and compared to the pressure measurements at all locations taken during the previous CRE inleakage testing. These evaluations shall be used as part of an assessment of the CRE boundary between CRE inleakage tests.

f. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph d. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemical and smoke challenges must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

5.5 Programs and Manuals

5.5.18 Control Room Envelope Habitability Program (continued)

g. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c, d, and e, respectively.

B 3.7 PLANT SYSTEMS

B 3.7.10 Control Room Emergency Filtration System (CREFS)

BASES

BACKGROUND

The CREFS provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. ~~[chemicals, or toxic gas].~~

The CREFS consists of two independent, redundant trains that recirculate and filter the air in the control room envelope (CRE) ~~air~~ and a CRE boundary that limits the inleakage of unfiltered air. Each CREFS train consists of a prefilter or demister, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system, as well as demisters to remove water droplets from the air stream. A second bank of HEPA filters follows the adsorber section to collect carbon fines and provides backup in case of failure of the main HEPA filter bank.

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit for normal and accident conditions. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected for normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

The CREFS is an emergency system, parts of which may also operate during normal unit operations in the standby mode of operation. Upon receipt of the actuating signal(s), normal air supply to the CRE ~~control room~~ is isolated, and the stream of ventilation air is recirculated through the system filter trains. The prefilters or demisters remove any large particles in the air, and any entrained water droplets present, to prevent excessive loading of the HEPA filters and charcoal adsorbers. Continuous operation of each train for at least 10 hours per month, with the heaters on, reduces moisture buildup on the HEPA filters and adsorbers. Both the demister and heater are important to the effectiveness of the charcoal adsorbers.

BASES

BACKGROUND (continued)

Actuation of the CREFS places the system in either of two separate states (emergency radiation state or toxic gas isolation state) of the emergency mode of operation, depending on the initiation signal. Actuation of the system to the emergency radiation state of the emergency mode of operation, closes the unfiltered outside air intake and unfiltered exhaust dampers, and aligns the system for recirculation of the air within the CRE ~~control room air~~ through the redundant trains of HEPA and the charcoal filters. The emergency radiation state also initiates pressurization and filtered ventilation of the air supply to the CRE ~~control room~~.

Outside air is filtered, diluted with building air from the electrical equipment and cable spreading rooms, and added to the air being recirculated from the CRE ~~control room~~. Pressurization of the CRE ~~control room prevents~~ minimizes infiltration of unfiltered air through the CRE boundary from all the surrounding areas ~~of the building~~ adjacent to the CRE boundary. The actions taken in the toxic gas isolation state are the same, except that the signal switches ~~control room ventilation~~ the CREFS to an isolation alignment to ~~prevent~~ minimize any outside air from entering the CRE ~~control room~~ through the CRE boundary.

The air entering the CRE ~~control room~~ is continuously monitored by radiation and toxic gas detectors. One detector output above the setpoint will cause actuation of the emergency radiation state or toxic gas isolation state, as required. The actions of the toxic gas isolation state are more restrictive, and will override the actions of the emergency radiation state.

A single CREFS train operating at a flow rate of ≤ [3000] cfm will pressurize the CRE ~~control room~~ to about [0.125] inches water gauge relative to all external areas adjacent to the CRE boundary. The CREFS operation in maintaining the CRE ~~control room~~ habitable is discussed in the FSAR, Section [6.4] (Ref. 1).

Redundant supply and recirculation trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally open isolation dampers are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation. The CREFS is designed in accordance with Seismic Category I requirements.

The CREFS is designed to maintain a habitable environment in the CRE ~~the control room environment~~ for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a [5 rem whole body dose or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)].

BASES

APPLICABLE SAFETY ANALYSES

The CREFS components are arranged in redundant, safety related ventilation trains. The location of components and ducting within the ~~control room envelope~~ CRE ensures an adequate supply of filtered air to all areas requiring access.

The CREFS provides airborne radiological protection for CRE occupants ~~the control room operators,~~ as demonstrated by the CRE occupant ~~control room accident~~ dose analyses for the most limiting design basis ~~loss of coolant~~ accident, fission product release presented in the FSAR, Chapter [15] (Ref. 2).

The analysis of toxic gas releases demonstrates that the toxicity limits are not exceeded in the CRE ~~control room~~ following a toxic chemical release, as presented in Reference 1.

The worst case single active failure of a component of the CREFS, assuming a loss of offsite power, does not impair the ability of the system to perform its design function.

The CREFS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two independent and redundant CREFS trains are required to be OPERABLE to ensure that at least one is available ~~assuming~~ if a single active failure disables the other train. Total CREFS system failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in exceeding a dose of ~~5 rem to the control room operator~~ [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE] to CRE occupants in the event of a large radioactive release.

~~The~~ Each CREFS train is considered OPERABLE when the individual components necessary to limit ~~operator~~ CRE occupant exposure are OPERABLE ~~in both trains~~. A CREFS train is OPERABLE when the associated:

a. Fan is OPERABLE,

b. HEPA filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions, and

c. Heater, demister, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

~~In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.~~

BASES

LCO (continued)

In order for the CREFS trains to be considered OPERABLE, the CRE boundary must be maintained such that CRE occupant dose from a large radioactive release does not exceed the calculated dose of the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from hazardous chemicals and smoke.

The LCO is modified by a Note allowing the CRE~~control room~~ boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with operators in the CRE~~control room~~. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE~~control room~~ isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, 4, [5, and 6,] and during movement of [recently] irradiated fuel assemblies, the CREFS must be OPERABLE to ensure that the CRE will remain habitable ~~control operator exposure~~ during and following a DBA.

In [MODE 5 or 6], the CREFS is required to cope with the release from the rupture of an outside waste gas tank.

During movement of [recently] irradiated fuel assemblies, the CREFS must be OPERABLE to cope with the release from a fuel handling accident [involving handling recently irradiated fuel]. [The CREFS is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days), due to radioactive decay.]

ACTIONS

A.1

When one CREFS train is inoperable, for reasons other than an inoperable CRE boundary, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CREFS train is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE CREFS train could result in loss of CREFS function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and ability of the remaining train to provide the required capability.

BASES

ACTIONS (continued)

~~B.1~~

~~REVIEWER'S NOTE~~
~~Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.~~

~~If the control room boundary is inoperable in MODE 1, 2, 3, or 4, the CREFS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary.~~

B.1, B.2 and B.3

If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE]), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is considered inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 60 days.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. The mitigating actions should also address maintaining temperature and relative humidity within limits, and physical security. These mitigating

BASES

ACTIONS (continued)

actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 60 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. The 60 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

C.1 and C.2

In MODE 1, 2, 3, or 4, if the inoperable CREFS train or the CRE ~~control room~~ boundary cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1 and D.2

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, if the inoperable CREFS train cannot be restored to OPERABLE status within the required Completion Time, action must be taken to immediately place the OPERABLE CREFS train in the emergency mode. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure would be readily detected.

An alternative to Required Action D.1 is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the CRE ~~control room~~. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.

Required Action D.1 is modified by a Note indicating to place the system in the toxic gas protection mode if automatic transfer to the toxic gas protection mode is inoperable.

BASES

ACTIONS (continued)

E.1

[In MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies, with two CREFS trains inoperable or with one or more CREFS trains inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter the CRE ~~control room~~. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

F.1

If both CREFS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable CRE ~~control room~~ boundary (i.e., Condition B), the CREFS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not too severe, testing each train once every month provides an adequate check of this system. Monthly heater operations dry out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥15 minutes to demonstrate the function of the system.] The 31 day Frequency is based on the reliability of the equipment and the two train redundancy availability.

SR 3.7.10.2

This SR verifies that the required CREFS testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum flow rate, and the physical properties of the activated charcoal. Specific test Frequencies and additional information are discussed in detail in the [VFTP].

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.10.3

This SR verifies that each CREFS train starts and operates on an actual or simulated actuation signal. The Frequency of [18] months is based on industry operating experience and is consistent with the typical refueling cycle. ~~The Frequency of [18] months is specified in Regulatory Guide 1.52 (Ref. 3).~~

SR 3.7.10.4

~~This SR verifies the integrity of the control room enclosure, and the assumed inleakage rates of the potentially contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas, is periodically tested to verify proper functioning of the CREFS. During the emergency mode of operation, the CREFS is designed to pressurize the control room ≥[0.125] inches water gauge positive pressure with respect to adjacent areas in order to prevent unfiltered inleakage. The CREFS is designed to maintain this positive pressure with one train at a makeup flow rate of [3000] cfm. The Frequency of [18] months on a STAGGERED TEST BASIS is consistent with the guidance provided in NUREG-0800 (Ref. 4).~~

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the CRE Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE] and the CRE occupants are protected from hazardous chemicals and smoke. The CRE boundary is considered OPERABLE when unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Mitigating actions, or compensatory measures, are discussed in Regulatory Guide 1.196, Section 2.7.3, (Ref. 3) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 4). Temporary analytical methods may also be used as compensatory measures (Ref. 5). Options for restoring the CRE boundary to OPERABLE status include changing

BASES

SURVEILLANCE REQUIREMENTS (continued)

the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

REFERENCES

1. FSAR, Section [~~6~~9.4].
2. FSAR, Chapter [15].
3. Regulatory Guide 1.196 ~~1.52, Rev. [2]~~.
4. NEI 99-03, "Control Room Habitability Assessment," March 2003 ~~NUREG-0800, Section 6.4, Rev. 2, July 1981.~~
5. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2005, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694).

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Air Cleanup System (CREACS)

LCO 3.7.11 Two CREACS trains shall be OPERABLE.

----------NOTE----------
The control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, [5, and 6,]
During movement of [recently] irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREACS train inoperable for reasons other than Condition B.	A.1 Restore CREACS train to OPERABLE status.	7 days
B. ~~Two~~One or more CREACS trains inoperable due to inoperable ~~control room~~ CRE boundary in MODE 1, 2, 3, or 4.	B.1 Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. AND B.~~1~~3 Restore ~~control room~~ CRE boundary to OPERABLE status.	Immediately 24 hours 60 days ~~24 hours~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. Required Action and associated Completion Time of Condition A not met [in MODES 5 and 6, or] during movement of [recently] irradiated fuel assemblies.	D.1 ----------NOTE---------- Place in toxic gas protection mode if automatic transfer to toxic gas mode inoperable. ---------- Place OPERABLE CREACS train in emergency radiation protection mode. OR D.2 Suspend movement of [recently] irradiated fuel assemblies.	 Immediately Immediately
E. Two CREACS trains inoperable [in MODES 5 and 6, or] during movement of [recently] irradiated fuel assemblies. OR One or more CREFS trains inoperable due to an inoperable CRE boundary [in Mode 5 or 6, or] during movement of [recently] irradiated fuel assemblies.	E.1 Suspend movement of [recently] irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two CREACS trains inoperable during MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Operate each CREACS train for [≥ 10 continuous hours with heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.7.11.2	Perform required CREACS filter testing in accordance with [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]
SR 3.7.11.3	Verify each CREACS train actuates on an actual or simulated actuation signal.	[18] months
~~SR 3.7.11.4~~	~~Verify one CREACS train can maintain a positive pressure of ≥ [0.125] inches water gauge, relative to the adjacent [area] during the emergency radiation state of the emergency mode of operation at a emergency ventilation flow rate of ≤ [3000] cfm.~~	~~[18] months on a STAGGERED TEST BASIS~~
SR 3.7.11.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program	In accordance with the Control Room Envelope Habitability Program

5.5 Programs and Manuals

5.5.16 Containment Leakage Rate Testing Program (continued)

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to [≥10 psig].

e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.17 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, based on [the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer] including the following

a. Actions to restore battery cells with float voltage < [2.13] V, and

b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

5.5.18 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented in accordance with the guidelines contained in Regulatory Guide 1.196, “Control Room Habitability at Light-Water Nuclear Power Reactors,” Revision 0, May 2003, Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and Regulatory Guide 1.78, “Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release,” Revision 1, December 2001.

[The following are exceptions to Regulatory Guide 1.196, Revision 0:

1. ; and]

[The following are exceptions to Regulatory Guide 1.197, Revision 0:

1. ; and]

5.5 Programs and Manuals

5.5.18 Control Room Envelope Habitability Program (continued)

[The following are exceptions to Regulatory Guide 1.78, Revision 1:

1. ; and]

The CRE Habitability Program shall ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Air Cleanup System (CREACS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for assessing CRE habitability at the Frequencies specified in Regulatory Guide 1.197, Revision 0.

d. Requirements for determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Regulatory Guide 1.197, Revision 0.

e. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREACS, operating at the flow rate required by the VFTP, at a Frequency of [18] months on a STAGGERED TEST BASIS. The results shall be trended and compared to the pressure measurements at all locations taken during the previous CRE inleakage testing. These evaluations shall be used as part of an assessment of the CRE boundary between CRE inleakage tests.

f. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph d. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemical and smoke challenges must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

5.5 Programs and Manuals

5.5.18 Control Room Envelope Habitability Program (continued)

g. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c, d, and e, respectively.

B 3.7 PLANT SYSTEMS

B 3.7.11 Control Room Emergency Air Cleanup System (CREACS)

BASES

BACKGROUND

The CREACS provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. ~~[chemicals, or toxic gas].~~

The CREACS consists of two independent, redundant trains that recirculate and filter the air in the control room envelope (CRE) ~~air~~ and a CRE boundary that limits the inleakage of unfiltered air. Each CREACS train consists of a prefilter and demister, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodine), and a fan. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system, as ~~do~~ well as demisters that remove water droplets from the air stream. A second bank of HEPA filters follows the adsorber section to collect carbon fines and provides backup in case of failure of the main HEPA filter bank. ~~, and to back up the main HEPA filter bank if it fails.~~

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit for normal and accident conditions. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected for normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

The CREACS is an emergency system, part of which may also operate during normal unit operations in the standby mode of operation. Upon receipt of the actuating signal(s), normal air supply to the CRE ~~control room~~ is isolated, and the stream of ventilation air is recirculated through the filter trains of the system. The prefilters and demisters remove any large particles in the air, and any entrained water droplets present to prevent excessive loading of the HEPA filters and charcoal adsorbers. Continuous operation of each train for at least 10 hours per month with the heaters on reduces moisture buildup on the HEPA filters and adsorbers. Both the demister and heater are important to the effectiveness of the charcoal adsorbers.

BASES

BACKGROUND (continued)

Actuation of the CREACS places the system into either of two separate states of the emergency mode of operation, depending on the initiation signal. Actuation of the system to the emergency radiation state of the emergency mode of operation closes the unfiltered outside air intake and unfiltered exhaust dampers, and aligns the system for recirculation of the air within the CRE ~~control room air~~ through the redundant trains of HEPA and charcoal filters. The emergency radiation state initiates pressurization and filtered ventilation of the air supply to the CRE ~~control room~~.

Outside air is filtered, [diluted with building air from the electrical equipment and cable spreading rooms,] and then added to the air being recirculated from the CRE ~~control room~~. Pressurization of the CRE ~~control room prevents~~ minimizes infiltration of unfiltered air through the CRE boundary from all the surrounding areas ~~of the building~~ adjacent to the CRE boundary. The actions taken in the toxic gas isolation state are the same, except that the signal switches ~~control room ventilation~~ the CREACS to an isolation mode, ~~preventing~~ to minimize any outside air from entering the CRE ~~control room~~ through the CRE boundary.

The air entering the CRE ~~control room~~ is continuously monitored by radiation and toxic gas detectors. One detector output above the setpoint will cause actuation of the emergency radiation state or toxic gas isolation state as required. The actions of the toxic gas isolation state are more restrictive, and will override the actions of the emergency radiation state.

A single CREACS train operating at a flow rate of ≤ [3000] cfm will pressurize the CRE ~~control room~~ to about [0.125] inches water gauge relative to all external areas adjacent to the CRE boundary, and provides an air exchange rate in excess of 25% per hour. The CREACS operation in maintaining the CRE ~~control room~~ habitable is discussed in the FSAR, Section [9.4] (Ref. 1).

Redundant supply and recirculation trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally open isolation dampers are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation. The CREACS is designed in accordance with Seismic Category I requirements.

The CREACS is designed to maintain a habitable environment in the CRE ~~the control room environment~~ for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a [5 rem whole body dose or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)].

BASES (continued)

APPLICABLE SAFETY ANALYSES

The CREACS components are arranged in redundant safety related ventilation trains. The location of components and ducting within the ~~control room envelope~~ CRE ensures an adequate supply of filtered air to all areas requiring access.

The CREACS provides airborne radiological protection for CRE occupants ~~the control room operators,~~ as demonstrated by the CRE occupant ~~control room accident~~ dose analyses for the most limiting design basis ~~loss of coolant~~ accident fission product release presented in the FSAR, Chapter [15] (Ref. 2).

The analysis of toxic gas releases demonstrates that the toxicity limits are not exceeded in the CRE ~~control room~~ following a toxic chemical release, as presented in Reference 1.

The worst case single active failure of a component of the CREACS, assuming a loss of offsite power, does not impair the ability of the system to perform its design function.

The CREACS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two independent and redundant trains of the CREACS are required to be OPERABLE to ensure that at least one is available~~, assuming~~ if ~~that~~ a single active failure disables the other train. Total ~~CREACS~~ ~~system~~ failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in ~~a control room operator receiving~~ exceeding a dose ~~in excess of~~ of [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE] to CRE occupants ~~5 rem~~ in the event of a large radioactive release.

~~The~~ Each CREACS train is considered OPERABLE when the individual components necessary to ~~control operator~~ limit CRE occupant exposure are OPERABLE ~~in both trains~~. A CREACS train is considered OPERABLE when the associated:

a. Fan is OPERABLE,

b. HEPA filters and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration functions, and

c. Heater, demister, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

~~In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.~~

BASES

LCO (continued)

In order for the CREACS trains to be considered OPERABLE, the CRE boundary must be maintained such that CRE occupant dose from a large radioactive release does not exceed the calculated dose of the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from hazardous chemicals and smoke.

The LCO is modified by a Note allowing the CRE~~control room~~ boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with operators in the CRE~~control room~~. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE~~control room~~ isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, ~~and~~ 4, [5, and 6,] and during movement of [recently] irradiated fuel assemblies, the CREACS must be OPERABLE to ensure that the CRE will remain habitable ~~limit operator exposure~~ during and following a DBA.

In MODES [5 and 6], the CREACS is required to cope with the release from a rupture of an outside waste gas tank.

During movement of [recently] irradiated fuel assemblies, the CREACS must be OPERABLE to cope with the release from a fuel handling accident. [Due to radioactive decay, CREACS is only required to cope with fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days).]

ACTIONS

A.1

With one CREACS train inoperable, for reasons other than an inoperable CRE boundary, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CREACS subsystem is adequate to perform control room radiation protection function. However, the overall reliability is reduced because a single failure in the OPERABLE CREACS train could result in loss of CREACS function. The 7 day Completion Time is based on the low probability of a

BASES

ACTIONS (continued)

DBA occurring during this time period, and the ability of the remaining train to provide the required capability.

~~B.1~~

~~----------REVIEWER'S NOTE----------~~
~~Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.~~
~~----------~~

~~If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the CREACS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary.~~

B.1, B.2 and B.3

If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE]), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is considered inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 60 days.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose

BASES

ACTIONS (continued)

of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. The mitigating actions should also address maintaining temperature and relative humidity within limits, and physical security. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 60 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. The 60 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

C.1 and C.2

In MODE 1, 2, 3, or 4, if ~~If~~ the inoperable CREACS or the CRE ~~control room~~ boundary cannot be restored to OPERABLE status within the associated Completion Time ~~in MODE 1, 2, 3, or 4~~, the unit must be placed in a MODE that minimizes the accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1 and D.2

~~Required Action D.1 is modified by a Note indicating to place the system in the emergency radiation protection mode if the automatic transfer to emergency mode is inoperable.~~

In MODE 5 or 6, or during movement of [recently] irradiated fuel assemblies, if Required Action A.1 cannot be completed within the required Completion Time, the OPERABLE CREACS train must be immediately placed in the emergency mode of operation. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

BASES

ACTIONS (continued)

An alternative to Required Action D.1 is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the CRE ~~control room~~. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies to a safe position.

Required Action D.1 is modified by a Note indicating to place the system in the toxic gas protection mode if the automatic transfer to the toxic gas protection mode is inoperable.

E.1

When [in MODES 5 and 6, or] during movement of [recently] irradiated fuel assemblies, with two CREACS trains inoperable or with one or more CREACS trains inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the CRE ~~control room~~. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.

F.1

If both CREACS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable CRE ~~control room~~ boundary (i.e., Condition B), the CREACS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

Standby systems should be checked periodically to ensure that they function properly. Since the environment and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system.

Monthly heater operations dry out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥ 10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥ 15 minutes to demonstrate the function of the system.] The 31 day Frequency is based on the known reliability of the equipment, and the two train redundancy available.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.11.2

This SR verifies that the required CREACS testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the [VFTP].

SR 3.7.11.3

This SR verifies each CREACS train starts and operates on an actual or simulated actuation signal. The Frequency of [18] months is based on industry operating experience and is consistent with the typical refueling cycle. ~~The Frequency of [18] months is consistent with that specified in Reference 3.~~

SR 3.7.11.4

~~This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas, is periodically tested to verify proper function of the CREACS. During the emergency radiation state of the emergency mode of operation, the CREACS is designed to pressurize the control room ≥ [0.125] inches water gauge positive pressure with respect to adjacent areas in order to prevent unfiltered inleakage. The CREACS is designed to maintain this positive pressure with one train at an emergency ventilation flow rate of [3000] cfm. The Frequency of [18] months on a STAGGERED TEST BASIS is consistent with the guidance provided in NUREG-0800, Section 6.4 (Ref. 4).~~

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the CRE Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE] and the CRE occupants are protected from hazardous chemicals and smoke. The CRE boundary is

BASES

SURVEILLANCE REQUIREMENTS (continued)

considered OPERABLE when unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Mitigating actions, or compensatory measures, are discussed in Regulatory Guide 1.196, Section 2.7.3, (Ref. 3) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 4). Temporary analytical methods may also be used as compensatory measures (Ref. 5). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status

REFERENCES

1. FSAR, Section [~~6~~9.4].

2. FSAR, Chapter [15].

3. Regulatory Guide 1.196 ~~1.52, Rev. [2]~~.

4. NEI 99-03, "Control Room Habitability Assessment," March 2003 ~~NUREG-0800, Section 6.4, Rev. 2, July 1981.~~

5. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2005, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694).

3.7 PLANT SYSTEMS

3.7.4 [Main Control Room Environmental Control (MCREC)] System

LCO 3.7.4 Two [MCREC] subsystems shall be OPERABLE.

----------NOTE----------
The main control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, and 3,
During movement of [recently] irradiated fuel assemblies in the [secondary] containment,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [MCREC] subsystem inoperable for reasons other than Condition B.	A.1 Restore [MCREC] subsystem to OPERABLE status.	7 days
B. ~~Two~~One or more [MCREC] subsystems inoperable due to inoperable ~~control room~~ CRE boundary in MODE 1, 2, or 3.	B.1 Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. AND B.~~1~~3 Restore ~~control room~~ CRE boundary to OPERABLE status.	Immediately 24 hours 60 days ~~24 hours~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours
D. Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- D.1 ----------NOTE---------- [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] ---------- Place OPERABLE [MCREC] subsystem in [pressurization] mode. OR D.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment. AND D.2.2 Initiate action to suspend OPDRVs.	 Immediately Immediately Immediately
E. Two [MCREC] subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	E.1 Enter LCO 3.0.3.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two [MCREC] subsystems inoperable during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs. OR One or more [MCREC] subsystems inoperable due to inoperable CRE boundary during movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- F.1 Suspend movement of [recently] irradiated fuel assemblies in the [secondary] containment. AND F.2 Initiate action to suspend OPDRVs.	 Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each [MCREC] subsystem for [≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.7.4.2	Perform required [MCREC] filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]
SR 3.7.4.3	Verify each [MCREC] subsystem actuates on an actual or simulated initiation signal.	[18] months
~~SR 3.7.4.4~~	~~[Verify each [MCREC] subsystem can maintain a positive pressure of ≥ [0.1] inches water gauge relative to the [turbine building] during the [pressurization] mode of operation at a flow rate of ≤ [400] cfm.~~	~~[18] months on a STAGGERED TEST BASIS]~~
SR 3.7.4.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program	In accordance with the Control Room Envelope Habitability Program

5.5 Programs and Manuals

5.5.13 Primary Containment Leakage Rate Testing Program (continued)

1. Containment leakage rate acceptance criterion is ≤ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are < 0.60 L_a for the Type B and C tests and [< 0.75 L_a for Option A Type A tests] [≤ 0.75 L_a for Option B Type A tests].

2. Air lock testing acceptance criteria are:

   a) Overall air lock leakage rate is ≤ [0.05 L_a] when tested at ≥ P_a.

   b) For each door, leakage rate is ≤ [0.01 L_a] when pressurized to ≥ [10] psig.

e. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.14 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, based on [the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer] of the following:

a. Actions to restore battery cells with float voltage < [2.13] V, and

b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

5.5.15 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented in accordance with the guidelines contained in Regulatory Guide 1.196, “Control Room Habitability at Light-Water Nuclear Power Reactors,” Revision 0, May 2003, Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and Regulatory Guide 1.78, “Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release,” Revision 1, December 2001.

[The following are exceptions to Regulatory Guide 1.196, Revision 0:

1. ; and]

5.5 Programs and Manuals

5.5.15 Control Room Envelope Habitability Program (continued)

[The following are exceptions to Regulatory Guide 1.197, Revision 0:

1. ; and]

[The following are exceptions to Regulatory Guide 1.78, Revision 1:

1. ; and]

The CRE Habitability Program shall ensure that CRE habitability is maintained such that, with an OPERABLE [Main Control Room Environmental Control (MCREC) System], CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for assessing CRE habitability at the Frequencies specified in Regulatory Guide 1.197, Revision 0.

d. Requirements for determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Regulatory Guide 1.197, Revision 0.

e. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREFS, operating at the flow rate required by the VFTP, at a Frequency of [18] months on a STAGGERED TEST BASIS. The results shall be trended and compared to the pressure measurements at all locations taken during the previous CRE inleakage testing. These evaluations shall be used as part of an assessment of the CRE boundary between CRE inleakage tests.

5.5 Programs and Manuals

5.5.15 Control Room Envelope Habitability Program (continued)

f. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph d. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemical and smoke challenges must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

g. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c, d, and e, respectively.

B 3.7 PLANT SYSTEMS

B 3.7.4 [Main Control Room Environmental Control (MCREC)] System

BASES

BACKGROUND

The [MCREC] System provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke.~~radiologically controlled environment from which the unit can be safely operated following a Design Basis Accident (DBA).~~

The safety related function of [MCREC] System includes two independent and redundant high efficiency air filtration subsystems for emergency treatment of recirculated air or outside supply air and a CRE boundary that limits the inleakage of unfiltered air. Each [MCREC] subsystem consists of a demister, an electric heater, a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section, a second HEPA filter, a booster fan, an air handling unit (excluding the condensing unit), and the associated ductwork, dampers, doors, barriers, and instrumentation. ~~ductwork and dampers.~~ Demisters remove water droplets from the airstream. Prefilters and HEPA filters remove particulate matter, which may be radioactive. The charcoal adsorbers provide a holdup period for gaseous iodine, allowing time for decay.

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit for normal and accident conditions. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected for normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

The [MCREC] System is a standby system, parts of which also operate during normal unit operations to maintain the CRE ~~control room~~ environment. Upon receipt of the initiation signal(s) (indicative of conditions that could result in radiation exposure to CRE occupants ~~control room personnel~~), the [MCREC] System automatically switches to the pressurization mode of operation to prevent infiltration of contaminated air into the CRE ~~control room~~. A system of dampers

BASES

BACKGROUND (continued)

isolates the CRE, ~~control room,~~ and a part of the recirculated air is routed through either of the two filter subsystems. Outside air is taken in at the normal ventilation intake and is mixed with the recirculated air before being passed through one of the charcoal adsorber filter subsystems for removal of airborne radioactive particles.

The [MCREC] System is designed to maintain a habitable environment in the CRE ~~the control room environment~~ for a 30 day continuous occupancy after a DBA without exceeding [5 rem whole body dose or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)]. A single [MCREC] subsystem operating at a flow rate of ≤ [400] cfm will pressurize the CRE ~~control room~~ to about [0.1] inches water gauge relative to all external areas adjacent to the CRE boundary to minimize ~~to prevent~~ infiltration of air from all surrounding areas adjacent to the CRE boundary~~surrounding buildings~~. [MCREC] System operation in maintaining CRE ~~control room~~ habitability is discussed in the FSAR, Chapters [6] and [9], (Refs. 1 and 2, respectively).

APPLICABLE SAFETY ANALYSES

The ability of the [MCREC] System to maintain the habitability of the CRE ~~control room~~ is an explicit assumption for the safety analyses presented in the FSAR, Chapters [6] and [15] (Refs. 1 and 3, respectively). The pressurization mode of the [MCREC] System is assumed to operate following a ~~loss of coolant accident~~ design basis accident (DBA), fuel handling accident [involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)], main steam line break, and control rod drop accident, as discussed in the FSAR, Section [6.4.1.2.2] (Ref. 4). The radiological doses to CRE occupants ~~control room personnel~~ as a result of the various DBAs are summarized in Reference 3. No single active or passive failure will cause the loss of outside or recirculated air from the CRE ~~control room~~.

The [MCREC] System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two redundant subsystems of the [MCREC] System are required to be OPERABLE to ensure that at least one is available, ~~assuming~~ if a single active failure disables the other subsystem. Total [MCREC] ~~s~~System failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in exceeding a dose of [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE] to CRE occupants ~~of 5 rem to the control room operators~~ in the event of a DBA.

BASES

LCO (continued)

~~The~~ Each [MCREC] subsystem ~~System~~ is considered OPERABLE when the individual components necessary to ~~control operator~~ limit CRE occupant exposure are OPERABLE ~~in both subsystems~~. A subsystem is considered OPERABLE when its associated:

a. Fan is OPERABLE,

b. HEPA filter and charcoal adsorbers are not excessively restricting flow and are capable of performing their filtration functions, and

c. Heater, demister, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

~~In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.~~

In order for the [MCREC] subsystems to be considered OPERABLE, the CRE boundary must be maintained such that CRE occupant dose from a large radioactive release does not exceed the calculated dose of the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from hazardous chemicals and smoke.

The LCO is modified by a Note allowing the CRE~~main control room~~ boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with operators in the ~~main~~ CRE~~control room~~. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for ~~main~~ CRE~~control room~~ isolation is indicated.

APPLICABILITY

In MODES 1, 2, and 3, the [MCREC] System must be OPERABLE to ensure that the CRE will remain habitable ~~control operator exposure~~ during and following a DBA, since the DBA could lead to a fission product release.

In MODES 4 and 5, the probability and consequences of a DBA are reduced because of the pressure and temperature limitations in these MODES. Therefore, maintaining the [MCREC] System OPERABLE is not required in MODE 4 or 5, except for the following situations under which significant radioactive releases can be postulated:

BASES

APPLICABILITY (continued)

a. During operations with potential for draining the reactor vessel (OPDRVs) and

b. During movement of [recently] irradiated fuel assemblies in the [secondary] containment. [Due to radioactive decay, the MCREC System is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days).]

ACTIONS

A.1

With one [MCREC] subsystem inoperable, for reasons other than an inoperable CRE boundary, the inoperable [MCREC] subsystem must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE [MCREC] subsystem is adequate to perform control room radiation protection. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced [MCREC] System capability. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

~~B.1~~

~~REVIEWER'S NOTE~~

~~Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.~~

~~If the main control room boundary is inoperable in MODE 1, 2, or 3, the MCREC subsystems cannot perform their intended functions. Actions must be taken to restore an OPERABLE main control room boundary within 24 hours. During the period that the main control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the main control room boundary~~

BASES

ACTIONS (continued)

B.1, B.2 and B.3

If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE]), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is considered inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 60 days.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. The mitigating actions should also address maintaining temperature and relative humidity within limits, and physical security. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 60 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. The 60 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

C.1 and C.2

In MODE 1, 2, or 3, if the inoperable [MCREC] subsystem or the CRE ~~control room~~ boundary cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE that minimizes risk. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

BASES

ACTIONS (continued)

D.1, D.2.1 and D.2.2

The Required Actions of Condition D are modified by a Note indicating that LCO 3.0.3 does not apply. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of [recently] irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs, if the inoperable [MCREC] subsystem cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE [MCREC] subsystem may be placed in the pressurization mode. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent automatic actuation will occur, and that any active failure will be readily detected.

Required Action D.1 is modified by a Note alerting the operator to [place the system in the toxic gas protection mode if the toxic gas automatic transfer capability is inoperable].

An alternative to Required Action D.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the CRE ~~control room~~. This places the unit in a condition that minimizes risk.

If applicable, movement of [recently] irradiated fuel assemblies in the [secondary] containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

E.1

If both [MCREC] subsystems are inoperable in MODE 1, 2, or 3 for reasons other than an inoperable CRE ~~control room~~ boundary (i.e., Condition B), the [MCREC] System may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

BASES

ACTIONS (continued)

F.1 and F.2

The Required Actions of Condition F are modified by a Note indicating that LCO 3.0.3 does not apply. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of [recently] irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of [recently] irradiated fuel assemblies in the [secondary] containment or during OPDRVs, with two [MCREC] subsystems inoperable or with one or more [MCREC] subsystems inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the CRE ~~control room~~. This places the unit in a condition that minimizes risk.

If applicable, movement of [recently] irradiated fuel assemblies in the [secondary] containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. If applicable, actions must be initiated immediately to suspend ~~OPDVRs~~ OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 3.7.4.1

This SR verifies that a subsystem in a standby mode starts on demand and continues to operate. Standby systems should be checked periodically to ensure that they start and function properly. As the environmental and normal operating conditions of this system are not severe, testing each subsystem once every month provides an adequate check on this system. Monthly heater operation dries out any moisture that has accumulated in the charcoal as a result of humidity in the ambient air. [Systems with heaters must be operated for ≥ 10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥ 15 minutes to demonstrate the function of the system.] Furthermore, the 31 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.4.2

This SR verifies that the required [MCREC] testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the [VFTP].

SR 3.7.4.3

This SR verifies that on an actual or simulated initiation signal, each [MCREC] subsystem starts and operates. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.5 overlaps this SR to provide complete testing of the safety function. The Frequency of [18] months is based on industry operating experience and is consistent with the typical refueling cycle. ~~The [18] month Frequency is specified in Reference 5.~~

~~[SR 3.7.4.4~~

~~This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas (the turbine building), is periodically tested to verify proper function of the [MCREC] System. During the emergency mode of operation, the [MCREC] System is designed to slightly pressurize the control room ≥ [0.1] inches water gauge positive pressure with respect to the turbine building to prevent unfiltered inleakage. The [MCREC] System is designed to maintain this positive pressure at a flow rate of ≤ [400] cfm to the control room in the pressurization mode. The Frequency of [18] months on a STAGGERED TEST BASIS is consistent with industry practice and other filtration systems SRs.]~~

SR 3.7.4.4

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the CRE Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than [5 rem whole body or its equivalent to any

BASES

SURVEILLANCE REQUIREMENTS (continued)

part of the body] [5 rem TEDE] and the CRE occupants are protected from hazardous chemicals and smoke. The CRE boundary is considered OPERABLE when unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Mitigating actions, or compensatory measures, are discussed in Regulatory Guide 1.196, Section 2.7.3, (Ref. 5) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 6). Temporary analytical methods may also be used as compensatory measures (Ref. 7). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [9].
3. FSAR, Chapter [15].
4. FSAR, Section [6.4.1.2.2].
5. Regulatory Guide 1.196 ~~1.52, Rev. [2]~~.
6. NEI 99-03, "Control Room Habitability Assessment," March 2003
7. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2005, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694).

3.7 PLANT SYSTEMS

3.7.3 [Control Room Fresh Air (CRFA)] System

LCO 3.7.3 Two [CRFA] subsystems shall be OPERABLE.

----------NOTE----------
The control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, and 3,
During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment],
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [CRFA] subsystem inoperable for reasons other than Condition B.	A.1 Restore [CRFA] subsystem to OPERABLE status.	7 days
B. ~~Two~~One or more [CRFA] subsystems inoperable due to inoperable ~~control room~~ CRE boundary in MODE 1, 2, or 3.	B.1 Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. AND B.~~1~~3 Restore ~~control room~~ CRE boundary to OPERABLE status.	Immediately 24 hours 60 days ~~24 hours~~

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours
D. Required Action and associated Completion Time of Condition A not met during movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- D.1 ----------NOTE---------- [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.] ---------- Place OPERABLE [CRFA] subsystem in [isolation] mode. OR D.2.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment]. AND D.2.2 Initiate action to suspend OPDRVs.	 Immediately Immediately Immediately
E. Two [CRFA] subsystems inoperable in MODE 1, 2, or 3 for reasons other than Condition B.	E.1 Enter LCO 3.0.3.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two [CRFA] subsystems inoperable during movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs. OR One or more [CRFA] subsystems inoperable due to inoperable CRE boundary during movement of [recently] irradiated fuel assemblies in the [primary or secondary] containment or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- F.1 Suspend movement of [recently] irradiated fuel assemblies in the [primary and secondary containment]. AND F.2 Initiate action to suspend OPDRVs.	 Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each [CRFA] subsystem for [≥ 10 continuous hours with the heaters operating or (for systems without heaters) ≥ 15 minutes].	31 days
SR 3.7.3.2	Perform required [CRFA] filter testing in accordance with the [Ventilation Filter Testing Program (VFTP)].	In accordance with the [VFTP]
SR 3.7.3.3	Verify each [CRFA] subsystem actuates on an actual or simulated initiation signal.	[18] months
~~SR 3.7.3.4~~	~~[Verify each [CRFA] subsystem can maintain a positive pressure of ≥ [ ] inches water gauge relative to [adjacent buildings] during the [isolation] mode of operation at a flow rate of ≤ [ ] cfm.~~	~~[18] months on a STAGGERED TEST BASIS]~~
SR 3.7.4.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program	In accordance with the Control Room Envelope Habitability Program

5.5 Programs and Manuals

5.5.13 Primary Containment Leakage Rate Testing Program (continued)

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.14 Battery Monitoring and Maintenance Program

This Program provides for battery restoration and maintenance, based on [the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," or of the battery manufacturer] of the following:

a. Actions to restore battery cells with float voltage < [2.13] V, and

b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

5.5.15 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented in accordance with the guidelines contained in Regulatory Guide 1.196, “Control Room Habitability at Light-Water Nuclear Power Reactors,” Revision 0, May 2003, Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and Regulatory Guide 1.78, “Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release,” Revision 1, December 2001.

[The following are exceptions to Regulatory Guide 1.196, Revision 0:

1. _____; and]

[The following are exceptions to Regulatory Guide 1.197, Revision 0:

1. _____; and]

[The following are exceptions to Regulatory Guide 1.78, Revision 1:

1. _____; and]

The CRE Habitability Program shall ensure that CRE habitability is maintained such that, with an OPERABLE [Main Control Room Environmental Control (MCREC) System], CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of

5.5 Programs and Manuals

5.5.15 Control Room Envelope Habitability Program (continued)

the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for assessing CRE habitability at the Frequencies specified in Regulatory Guide 1.197, Revision 0.

d. Requirements for determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Regulatory Guide 1.197, Revision 0.

e. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CREFS, operating at the flow rate required by the VFTP, at a Frequency of [18] months on a STAGGERED TEST BASIS. The results shall be trended and compared to the pressure measurements at all locations taken during the previous CRE inleakage testing. These evaluations shall be used as part of an assessment of the CRE boundary between CRE inleakage tests.

f. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph d. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemical and smoke challenges must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

g. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c, d, and e, respectively.

B 3.7 PLANT SYSTEMS

B 3.7.3 [Control Room Fresh Air (CRFA)] System

BASES

BACKGROUND

The [CRFA] System provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. ~~radiologically controlled environment from which the unit can be safely operated following a Design Basis Accident (DBA).~~

The safety related function of the [CRFA] System used to control radiation exposure consists of two independent and redundant high efficiency air filtration subsystems for treatment of recirculated air or outside supply air and a CRE boundary that limits the inleakage of unfiltered air. Each [CRFA] subsystem consists of a demister, an electric heater, a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section, a second HEPA filter, a fan, and the associated ductwork, dampers, doors, barriers, and instrumentation. ~~ductwork and dampers.~~ Demisters remove water droplets from the airstream. Prefilters and HEPA filters remove particulate matter that may be radioactive. The charcoal adsorbers provide a holdup period for gaseous iodine, allowing time for decay.

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit for normal and accident conditions. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected for normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

In addition to the safety related standby emergency filtration function, parts of the [CRFA] System are operated to maintain the CRE ~~control room~~ environment during normal operation. Upon receipt of the initiation signal(s) (indicative of conditions that could result in radiation exposure to CRE occupants ~~control room personnel~~), the [CRFA] System automatically switches to the isolation mode of operation to prevent infiltration of contaminated air into the CRE ~~control room~~. A system of dampers isolates the CRE ~~control room~~, and CRE ~~control room~~ air flow is recirculated and processed through either of the two filter subsystems.

BASES

BACKGROUND (continued)

The [CRFA] System is designed to maintain a habitable environment in the CRE ~~the control room environment~~ for a 30 day continuous occupancy after a DBA, without exceeding a [5 rem whole body dose or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)]. [CRFA] System operation in maintaining CRE ~~the control room~~ habitability is discussed in the FSAR, Sections [6.5.1] and [9.4.1] (Refs. 1 and 2, respectively).

APPLICABLE SAFETY ANALYSES

The ability of the [CRFA] System to maintain the habitability of the CRE ~~control room~~ is an explicit assumption for the safety analyses presented in the FSAR, Chapters [6] and [15] (Refs. 3 and 4, respectively). The isolation mode of the [CRFA] System is assumed to operate following a ~~loss of coolant accident~~ design basis accident (DBA), main steam line break, fuel handling accident [involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)], and control rod drop accident. The radiological doses to CRE occupants ~~control room personnel~~ as a result of the various DBAs are summarized in Reference 4. No single active or passive failure will cause the loss of outside or recirculated air from the CRE ~~control room~~.

The [CRFA] System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two redundant subsystems of the [CRFA] System are required to be OPERABLE to ensure that at least one is available, ~~assuming~~ if a single active failure disables the other subsystem. Total [CRFA] ~~s~~System failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in exceeding a dose of [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE] to CRE occupants ~~of 5 rem to the control room operators~~ in the event of a DBA.

~~The~~ Each [CRFA] subsystem ~~System~~ is considered OPERABLE when the individual components necessary to ~~control operator~~ limit CRE occupant exposure are OPERABLE ~~in both subsystems~~. A subsystem is considered OPERABLE when its associated:

a. Fan is OPERABLE,

b. HEPA filter and charcoal adsorber are not excessively restricting flow and are capable of performing their filtration functions, and

c. Heater, demister, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

BASES

LCO (continued)

~~In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.~~

In order for the [CRFA] subsystems to be considered OPERABLE, the CRE boundary must be maintained such that CRE occupant dose from a large radioactive release does not exceed the calculated dose of the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from hazardous chemicals and smoke.

The LCO is modified by a Note allowing the CRE~~control room~~ boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with operators in the CRE~~control room~~. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE~~control room~~ isolation is indicated.

APPLICABILITY

In MODES 1, 2, and 3, the [CRFA] System must be OPERABLE to ensure that the CRE will remain habitable ~~control operator exposure~~ during and following a DBA, since the DBA could lead to a fission product release.

In MODES 4 and 5, the probability and consequences of a DBA are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the [CRFA] System OPERABLE is not required in MODE 4 or 5, except for the following situations under which significant radioactive releases can be postulated:

a. During operations with a potential for draining the reactor vessel (OPDRVs) and

b. During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment]. [Due to radioactive decay, the CRFA System is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days).]

BASES

ACTIONS

A.1

With one [CRFA] subsystem inoperable, for reasons other than an inoperable CRE boundary, the inoperable [CRFA] subsystem must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE [CRFA] subsystem is adequate to perform control room radiation protection. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem could result in loss of [CRFA] System function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

~~B.1~~

~~REVIEWER'S NOTE~~

~~Adoption of Condition B is dependent on a commitment from the licensee to have written procedures available describing compensatory measures to be taken in the event of an intentional or unintentional entry into Condition B.~~

~~If the control room boundary is inoperable in MODE 1, 2, or 3, the CRFA subsystems cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary.~~

B.1, B.2 and B.3

If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE]), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is considered inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 60 days.

BASES

ACTIONS (continued)

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. The mitigating actions should also address maintaining temperature and relative humidity within limits, and physical security. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 60 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. The 60 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

C.1 and C.2

In MODE 1, 2, or 3, if the inoperable [CRFA] subsystem or the CRE ~~control room~~ boundary cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE that minimizes risk. To achieve this status, the unit must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1, D.2.1 and D.2.2

The Required Actions of Condition D are modified by a Note indicating that LCO 3.0.3 does not apply. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of [recently] irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

BASES

ACTIONS (continued)

During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs, if the inoperable [CRFA] subsystem cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE [CRFA] subsystem may be placed in the isolation mode. This action ensures that the remaining subsystem is OPERABLE, that no failures that would prevent automatic actuation will occur, and that any active failure will be readily detected.

Required Action D.1 is modified by a Note alerting the operator to [place the system in the toxic gas protection mode if the toxic gas, automatic transfer capability is inoperable].

An alternative to Required Action D.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the CRE ~~control room~~. This places the unit in a condition that minimizes risk.

If applicable, movement of [recently] irradiated fuel assemblies in the [primary and secondary containment] must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, if applicable, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

E.1

If both [CRFA] subsystems are inoperable in MODE 1, 2, or 3 for reasons other than an inoperable CRE ~~control room~~ boundary (i.e., Condition B), the [CRFA] System may not be capable of performing the intended function and the unit is in a condition outside of the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

F.1 and F.2

The Required Actions of Condition F are modified by a Note indicating that LCO 3.0.3 does not apply. If moving [recently] irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of [recently] irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

BASES

ACTIONS (continued)

During movement of [recently] irradiated fuel assemblies in the [primary or secondary containment] or during OPDRVs, with two [CRFA] subsystems inoperable or with one or more [CRFA] subsystems inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the CRE ~~control room~~. This places the unit in a condition that minimizes risk.

If applicable, movement of [recently] irradiated fuel assemblies in the [primary and secondary containment] must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. If applicable, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR verifies that a subsystem in a standby mode starts on demand and continues to operate. Standby systems should be checked periodically to ensure that they start and function properly. As the environmental and normal operating conditions of this system are not severe, testing each subsystem once every month provides an adequate check on this system. Monthly heater operation dries out any moisture accumulated in the charcoal from humidity in the ambient air. [Systems with heaters must be operated for ≥ 10 continuous hours with the heaters energized. Systems without heaters need only be operated for ≥ 15 minutes to demonstrate the function of the system.] Furthermore, the 31 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.

SR 3.7.3.2

This SR verifies that the required CRFA testing is performed in accordance with the [Ventilation Filter Testing Program (VFTP)]. The [VFTP] includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the [VFTP].

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.3.3

This SR verifies that each [CRFA] subsystem starts and operates on an actual or simulated initiation signal. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.7.1.5 overlaps this SR to provide complete testing of the safety function. The Frequency of [18] months is based on industry operating experience and is consistent with the typical refueling cycle. ~~The [18] month Frequency is specified in Reference 5.~~

SR 3.7.3.4

~~This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas, is periodically tested to verify proper function of the [CRFA] System. During the emergency mode of operation, the [CRFA] System is designed to slightly pressurize the control room to [0.1] inches water gauge positive pressure with respect to adjacent areas to prevent unfiltered inleakage. The [CRFA] System is designed to maintain this positive pressure at a flow rate of [500] cfm to the control room in the isolation mode. The Frequency of [18] months on a STAGGERED TEST BASIS is consistent with industry practice and other filtration system SRs.~~

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the CRE Habitability Program.

Unfiltered air inleakage into the CRE greater than the amount assumed in the licensing basis consequence analyses for design basis accidents results in the CRE boundary being inoperable when control room habitability is not maintained (i.e., accident dose is greater than licensing basis consequence analyses calculated dose, which can be no greater than [5 rem whole body or its equivalent to any part of the body] [5 rem TEDE] or the control room occupants are not protected from hazardous chemicals or smoke.) However, when unfiltered air inleakage is greater than assumed in the licensing basis accident consequence analyses, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Mitigating actions, or compensatory measures, are discussed in Regulatory Guide 1.196, Section 2.7.3, (Ref. 5) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 6). Temporary analytical methods may

BASES

SURVEILLANCE REQUIREMENTS (continued)

also be used as compensatory measures (Ref. 7). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

REFERENCES

1. FSAR, Section [6.5.1].
2. FSAR, Section [9.4.1].
3. FSAR, Chapter [6].
4. FSAR, Chapter [15].
5. Regulatory Guide 1.196 ~~1.52, Rev. [2]~~.
6. NEI 99-03, "Control Room Habitability Assessment," March 2003
7. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2005, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694.).

Change Number	Description	Revised Specification (Spec), Bases Section, Paragraph (¶-#), or Sentence # of NUREG-				
		1430	1431	1432	1433	1434
1	Revise Condition A to exclude Condition B.	Spec 3.7.10 Condition A	Spec 3.7.10 Condition A	Spec 3.7.11 Condition A	Spec 3.7.4 Condition A	Spec 3.7.3 Condition A
2	Revise Condition B to apply to one, as well as two, control room envelope (CRE) emergency ventilation systems (CREEVS) made inoperable due to an inoperable CRE boundary.	Spec 3.7.10 Condition B	Spec 3.7.10 Condition B	Spec 3.7.11 Condition B	Spec 3.7.4 Condition B	Spec 3.7.3 Condition B
3	Add a required action (RA) to initiate action to implement mitigating actions immediately.	Spec 3.7.10 RA B.1	Spec 3.7.10 RA B.1	Spec 3.7.11 RA B.1	Spec 3.7.4 RA B.1	Spec 3.7.3 RA B.1
4	Add the word “envelope” and use the acronym CRE in place of “control room” (except for plant-specific name for the CREEVS).	Spec 3.7.10 LCO Note Condition B RAs B.2 & B.3	Spec 3.7.10 LCO Note Condition B RAs B.2 & B.3	Spec 3.7.11 LCO Note Condition B RAs B.2 & B.3	Spec 3.7.4 LCO Note Condition B RAs B.2 & B.3	Spec 3.7.3 LCO Note Condition B RAs B.2 & B.3
5	Add a RA to verify, within 24 hours, that mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits.	Spec 3.7.10 RA B.2	Spec 3.7.10 RA B.2	Spec 3.7.11 RA B.2	Spec 3.7.4 RA B.2	Spec 3.7.3 RA B.1

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		1430	1431	1432	1433	1434
6	Re-number STS RA B.1 as RA B.3	Spec 3.7.10 RA B.3	Spec 3.7.10 RA B.3	Spec 3.7.11 RA B.3	Spec 3.7.4 RA B.3	Spec 3.7.3 RA B.3
7	Add a new condition to Condition E that states, “One or more CREEVS trains inoperable due to an inoperable CRE boundary [in Mode 5 or 6, or] during movement of [recently] irradiated fuel assemblies.”	Spec 3.7.10 Condition E second condition	Spec 3.7.10 Condition E second condition	Spec 3.7.11 Condition E second condition	Not Applicable	Not Applicable
8	Add phrase “[in MODE 5 or 6, or]” to Conditions D and E.	Spec 3.7.10 Condition D Condition E first condition	Not Applicable	Not Applicable	Not Applicable	Not Applicable
9	Add a new condition to Condition F that states, “One or more CREEVS subsystems inoperable due to inoperable CRE boundary during movement of [recently] irradiated fuel assemblies in the [[primary or] secondary] containment or during OPDRVs.	Not Applicable	Not Applicable	Not Applicable	Spec 3.7.4 Condition F second condition	Spec 3.7.3 Condition F second condition
10	Delete differential pressure surveillance requirement (SR).	Spec 3.7.10 SR 3.7.10.4	Spec 3.7.10 SR 3.7.10.4	Spec 3.7.11 SR 3.7.11.4	Spec 3.7.4 SR 3.7.4.4	Spec 3.7.3 SR 3.7.3.4

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		1430	1431	1432	1433	1434
11	Add a new surveillance requirement that states, "Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program."	Spec 3.7.10 SR 3.7.10.4	Spec 3.7.10 SR 3.7.10.4	Spec 3.7.11 SR 3.7.11.4	Spec 3.7.4 SR 3.7.4.4	Spec 3.7.3 SR 3.7.3.4
12	Replace "irradiate" with "irradiated" for editorial correction.	Not Applicable	Spec 3.7.10 Condition E first condition	Not Applicable	Not Applicable	Not Applicable
13	Add a CRE Habitability Program specification.	Spec 5.5.18	Spec 5.5.18	Spec 5.5.18	Spec 5.5.15	Spec 5.5.15
14	Replace "[, chemicals, or toxic gas]." with ", hazardous chemicals, or smoke."	B 3.7.10 Background ¶-1	B 3.7.10 Background ¶-1	B 3.7.11 Background ¶-1	Not Applicable	Not Applicable
15	Revise to be consistent with PWR STSs.	Not Applicable	Not Applicable	Not Applicable	B 3.7.4 Background ¶-1	B 3.7.3 Background ¶-1
16	Clarify that the CREEVS includes the CRE boundary.	B 3.7.10 Background ¶-2, Sentence 1	B 3.7.10 Background ¶-2, Sentence 1	B 3.7.11 Background ¶-2, Sentence 1	B 3.7.4 Background ¶-2, Sentence 1	B 3.7.3 Background ¶-2, Sentence 1
17	Revise to be more consistent with other PWR STSs.	B 3.7.10 Background ¶-2, Sentences 1 & 2	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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		1430	1431	1432	1433	1434
18	Add system acronym to modify “train” for clarification.	B 3.7.10 Background ¶-2, Sentence 2	B 3.7.10 Background ¶-2, Sentence 2	B 3.7.11 Background ¶-2, Sentence 2	B 3.7.4 Background ¶-2, Sentence 2	B 3.7.3 Background ¶-2, Sentence 2
19	Add sentence to clarify that ‘doors and barriers’ also form part of the CREVS.	B 3.7.10 Background ¶-2, Sentence 3	Not Applicable	Not Applicable	Not Applicable	Not Applicable
20	Revise sentence to clarify that ‘doors and barriers’ also form part of the CREEVS.	Not Applicable	B 3.7.10 Background ¶-2, Sentence 3	B 3.7.11 Background ¶-2, Sentence 3	Not Applicable	Not Applicable
21	Revise sentence to clarify that ‘doors, barriers, and instrumentation’ also form part of the CREEVS.	Not Applicable	Not Applicable	Not Applicable	B 3.7.4 Background ¶-2, Sentence 2	B 3.7.3 Background ¶-2, Sentence 2
22	Replace “provide” with “provides” for editorial correction.	Not Applicable	B 3.7.10 Background ¶-2, Sentence 4	Not Applicable	Not Applicable	Not Applicable
23	Replace “do” with “well as” for consistency and editorial correction.	Not Applicable	Not Applicable	B 3.7.11 Background ¶-2, Sentence 3	Not Applicable	Not Applicable
24	Replace “, and to back up the main HEPA filter bank if it fails” with “and provides backup in case of failure of the main HEPA filter bank” for consistency with WOG STSs.	Not Applicable	Not Applicable	B 3.7.11 Background ¶-2, Sentence 4	Not Applicable	Not Applicable

Change Number	Description	Revised Specification (Spec), Bases Section, Paragraph (¶-#), or Sentence # of NUREG-				
		1430	1431	1432	1433	1434
25	Add a new paragraph that generally describes the CRE and its boundary.	B 3.7.10 Background ¶-3	B 3.7.10 Background ¶-3	B 3.7.11 Background ¶-3	B 3.7.4 Background ¶-3	B 3.7.3 Background ¶-3
26	Replace ‘control room’ with ‘CRE.’	B 3.7.10 Background ¶-4, Sentence 2 ¶-5, Sentence 1 ¶-6, Sentence 1	B 3.7.10 Background ¶-4, Sentence 2 ¶-5, Sentence 3 ¶-6, Sentences 1, 2, & 3 ¶-7, Sentence 1 ¶-8, Sentences 1 & 2	B 3.7.11 Background ¶-4, Sentence 2 ¶-5, Sentence 3 ¶-6, Sentences 1, 2, & 3 ¶-7, Sentence 1 ¶-8, Sentences 1 & 2	B 3.7.4 Background ¶-4, Sentences 1, 2, & 3 ¶-5, Sentences 2 & 3	B 3.7.3 Background ¶-4, Sentences 1, 2, & 3 ¶-5, Sentence 2
27	Replace "control room personnel" with "CRE occupants" for consistent terminology.	Not Applicable	Not Applicable	Not Applicable	B 3.7.4 Background ¶-4, Sentence 2	B 3.7.3 Background ¶-4, Sentence 2
28	Replace “control room air” with ‘’the air within the CRE.’’	Not Applicable	B 3.7.10 Background ¶-5, Sentence 2	B 3.7.11 Background ¶-5, Sentence 2	Not Applicable	Not Applicable
29	Remove phrase “with a 1.5 ft^2 LEAKAGE area” for consistency with other PWR STSs.	B 3.7.10 Background ¶-5, Sentence 1	Not Applicable	Not Applicable	Not Applicable	Not Applicable
30	Add phrase “in maintaining the CRE habitable” to modify the word “operation” for clarity.	B 3.7.10 Background ¶-5, Sentence 2	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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31	Revise sentence as follows: Pressurization of the <u>CRE</u> ~~control room prevents~~ <u>minimizes</u> infiltration of unfiltered air <u>through the CRE boundary</u> from <u>all</u> the surrounding areas ~~of the building~~ <u>adjacent to the CRE boundary</u>.	Not Applicable	B 3.7.10 Background ¶-6, Sentence 2	B 3.7.11 Background ¶-6, Sentence 2	Not Applicable	Not Applicable
33	Replace “prevent” with “minimize any,” or “preventing” with “to minimize any.”	Not Applicable	B 3.7.10 Background ¶-6, Sentence 3	B 3.7.11 Background ¶-6, Sentence 3	Not Applicable	Not Applicable
34	Add “through the CRE boundary” to the end of the sentence.	Not Applicable	B 3.7.10 Background ¶-6, Sentence 3	B 3.7.11 Background ¶-6, Sentence 3	Not Applicable	Not Applicable
35	Replace “control room ventilation” with “the CREEVS” for clarity.	Not Applicable	B 3.7.10 Background ¶-6, Sentence 3	B 3.7.11 Background ¶-6, Sentence 3	Not Applicable	Not Applicable
36	Add “CREEVS” to clarify what system the “single train” belongs to.	B 3.7.10 Background ¶-5, Sentence 1	B 3.7.10 Background ¶-8, Sentence 1	B 3.7.11 Background ¶-8, Sentence 1	Not Applicable	Not Applicable

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		1430	1431	1432	1433	1434
37	Add the flow rate criterion from the deleted CRE pressurization-flow SR, and stipulate that the minimum pressure criterion is "relative to all external areas adjacent to the CRE boundary."	B 3.7.10 Background ¶-5, Sentence 1	B 3.7.10 Background ¶-8, Sentence 1	B 3.7.11 Background ¶-8, Sentence 1	B 3.7.4 Background ¶-5, Sentence 2	Not Applicable
38	Revise sentence as follows: A single [MCREC] subsystem operating at a flow rate of ≤ [400] cfm will pressurize the CRE ~~control room~~ to about [0.1] inches water gauge relative to all external areas adjacent to the CRE boundary to minimize ~~to prevent~~ infiltration of air from all surrounding areas adjacent to the CRE boundary ~~surrounding buildings~~.	Not Applicable	Not Applicable	Not Applicable	B 3.7.4 Background ¶-5, Sentence 2	Not Applicable
39	No changes	Not Applicable	B 3.7.10 Background ¶-9	B 3.7.11 Background ¶-9	Not Applicable	Not Applicable
40	Add phrase "habitable environment in" following word "maintain."	B 3.7.10 Backgound ¶-6, Sentence 1	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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41	Replace “the control room environment” with “a habitable environment in the CRE.”	Not Applicable	B 3.7.10 Background ¶-10, Sentence 1	B 3.7.11 Background ¶-10, Sentence 1	B 3.7.4 Background ¶-5, Sentence 1	B 3.7.3 Background ¶-5, Sentence 1
42	Put “5 rem whole body dose or its equivalent to any part of the body” in brackets, and add “[5 rem total effective dose equivalent (TEDE)]” at the end.	B 3.7.10 Backgound ¶-6, Sentence 1	B 3.7.10 Background ¶-10, Sentence 1	B 3.7.11 Background ¶-10, Sentence 1	B 3.7.4 Background ¶-5, Sentence 2	B 3.7.3 Background ¶-5, Sentence 2
43	Split first paragraph in Applicable Safety Analyes (ASA) section to match CEOG STSs.	B 3.7.10 ASA	B 3.7.10 ASA	Not Applicable	Not Applicable	Not Applicable
44	Replace "control room envelope" with "CRE."	B 3.7.10 ASA ¶-1, Sentence 2	B 3.7.10 ASA ¶-1, Sentence 2	B 3.7.11 ASA ¶-1, Sentence 2	Not Applicable	Not Applicable
45	Replace "the control room operators" with "CRE occupants"	B 3.7.10 ASA ¶-2, Sentence 1	B 3.7.10 ASA ¶-2, Sentence 1	B 3.7.11 ASA ¶-2, Sentence 1	Not Applicable	Not Applicable
46	Replace "control room accident" with "CRE occupant."	B 3.7.10 ASA ¶-2, Sentence 1	B 3.7.10 ASA ¶-2, Sentence 1	B 3.7.11 ASA ¶-2, Sentence 1	Not Applicable	Not Applicable
47	Remove "loss of coolant."	B 3.7.10 ASA ¶-2, Sentence 1	B 3.7.10 ASA ¶-2, Sentence 1	B 3.7.11 ASA ¶-2, Sentence 1	Not Applicable	Not Applicable

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48	Replace "control room" with "CRE."	B 3.7.10 ASA ¶-4, Sentence 1	B 3.7.10 ASA ¶-3, Sentence 1	B 3.7.11 ASA ¶-3, Sentence 1	B 3.7.4 ASA ¶-1, Sentence 1 ¶-1, Sentence 4	B 3.7.3 ASA ¶-1, Sentence 1 ¶-1, Sentence 4
49	Replace "loss of coolant accident" with "design basis accident (DBA)."	Not Applicable	Not Applicable	Not Applicable	B 3.7.4 ASA ¶-1, Sentence 2	B 3.7.3 ASA ¶-1, Sentence 2
50	Replace "control room personnel" with "CRE occupants."	Not Applicable	Not Applicable	Not Applicable	B 3.7.4 ASA ¶-1, Sentence 3	B 3.7.3 ASA ¶-1, Sentence 3
51	no changes	B 3.7.10 ASA ¶-3 and ¶-5	B 3.7.10 ASA ¶-4 and ¶-5	B 3.7.11 ASA ¶-4 and ¶-5	B 3.7.4 ASA ¶-2	B 3.7.3 ASA ¶-2
52	Replace "assuming [that]" with "if" for consistency with BWOG STSs.	Not Applicable	B 3.7.10 LCO ¶-1, Sentence 1	B 3.7.11 LCO ¶-1, Sentence 1	B 3.7.4 LCO ¶-1, Sentence 1	B 3.7.3 LCO ¶-1, Sentence 1
53	Clarify that "a single failure" means a single "active" failure.	B 3.7.10 LCO ¶-1, Sentence 1	B 3.7.10 LCO ¶-1, Sentence 1	B 3.7.11 LCO ¶-1, Sentence 1	B 3.7.4 LCO ¶-1, Sentence 1	B 3.7.3 LCO ¶-1, Sentence 1
54	Revise sentence to state that an inoperable CRE boundary could also result in CRE occupant exposures exceeding limits.	B 3.7.10 LCO ¶-1, Sentence 2	B 3.7.10 LCO ¶-1, Sentence 2	B 3.7.11 LCO ¶-1, Sentence 2	B 3.7.4 LCO ¶-1, Sentence 2	B 3.7.3 LCO ¶-1, Sentence 2

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55	Revise sentence by bracketing "5 rem" and adding "dose" language used in Background section.	B 3.7.10 LCO ¶-1, Sentence 2	B 3.7.10 LCO ¶-1, Sentence 2	B 3.7.11 LCO ¶-1, Sentence 2	B 3.7.4 LCO ¶-1, Sentence 2	B 3.7.3 LCO ¶-1, Sentence 2
56	Replace "to the control room operator" with "to CRE occupants."	B 3.7.10 LCO ¶-1, Sentence 2	B 3.7.10 LCO ¶-1, Sentence 2	B 3.7.11 LCO ¶-1, Sentence 2	B 3.7.4 LCO ¶-1, Sentence 2	B 3.7.3 LCO ¶-1, Sentence 2
57	Revise sentence to address one train or subsystem.	B 3.7.10 LCO ¶-2, Sentence 1	B 3.7.10 LCO ¶-2, Sentence 1	B 3.7.11 LCO ¶-2, Sentence 1	B 3.7.4 LCO ¶-2, Sentence 1	B 3.7.3 LCO ¶-2, Sentence 1
58	Replace "control operator" with "limit CRE occupant" for consistency with BWOG STSs.	Not Applicable	B 3.7.10 LCO ¶-2, Sentence 2	B 3.7.11 LCO ¶-2, Sentence 2	B 3.7.4 LCO ¶-2, Sentence 2	B 3.7.3 LCO ¶-2, Sentence 2
59	Replace "operator" with CRE occupant."	B 3.7.10 LCO ¶-2, Sentence 2	Not Applicable	Not Applicable	Not Applicable	Not Applicable
60	Replace paragraph with a more detailed description of the role of the CRE boundary in determining CREEVS operability.	B 3.7.10 LCO ¶-3	B 3.7.10 LCO ¶-3	B 3.7.11 LCO ¶-3	B 3.7.4 LCO ¶-3	B 3.7.3 LCO ¶-3
61	Replace "[main] control room" with "CRE."	B 3.7.10 LCO ¶-4, Sentences 1, 4, & 5	B 3.7.10 LCO ¶-4, Sentences 1, 4, & 5	B 3.7.11 LCO ¶-4, Sentences 1, 4, & 5	B 3.7.4 LCO ¶-4, Sentences 1, 4, & 5	B 3.7.3 LCO ¶-4, Sentences 1, 4, & 5

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62	Add sentence to clarify application of the LCO Note.	B 3.7.10 LCO ¶-4, Sentence 2	B 3.7.10 LCO ¶-4, Sentence 2	B 3.7.11 LCO ¶-4, Sentence 2	B 3.7.4 LCO ¶-4, Sentence 2	B 3.7.3 LCO ¶-4, Sentence 2
63	Clarify the administrative controls required by the LCO Note.	B 3.7.10 LCO ¶-4, Sentences 4 & 5	B 3.7.10 LCO ¶-4, Sentences 4 & 5	B 3.7.11 LCO ¶-4, Sentences 4 & 5	B 3.7.4 LCO ¶-4, Sentences 4 & 5	B 3.7.3 LCO ¶-4, Sentences 4 & 5
64	Clarify the basis for the applicability of the CREEVS.	B 3.7.10 Applicability ¶-1, Sentence 1	B 3.7.10 Applicability ¶-1, Sentence 1	B 3.7.11 Applicability ¶-1, Sentence 1	B 3.7.4 Applicability ¶-1, Sentence 1	B 3.7.3 Applicability ¶-1, Sentence 1
65	Revise to match Actions Condition A.	B 3.7.10 Actions A.1 ¶-1, Sentence 1	B 3.7.10 Actions A.1 ¶-1, Sentence 1	B 3.7.11 Actions A.1 ¶-1, Sentence 1	B 3.7.4 Actions A.1 ¶-1, Sentence 1	B 3.7.3 Actions A.1 ¶-1, Sentence 1
66	Remove Reviewer's Note and Bases for replaced Required Action B.1	B 3.7.10 Actions B.1, B.2, & B.3	B 3.7.10 Actions B.1, B.2, & B.3	B 3.7.11 Actions B.1, B.2, & B.3	B 3.7.4 Actions B.1, B.2, & B.3	B 3.7.3 Actions B.1, B.2, & B.3
67	Add Bases for revised Actions Condition B, and new Required Actions B.1, B.2, and B.3.	B 3.7.10 Actions B.1, B.2, & B.3 ¶-1 & 2	B 3.7.10 Actions B.1, B.2, & B.3 ¶-1 & 2	B 3.7.11 Actions B.1, B.2, & B.3 ¶-1 & 2	B 3.7.4 Actions B.1, B.2, & B.3 ¶-1 & 2	B 3.7.3 Actions B.1, B.2, & B.3 ¶-1 & 2
68	Revise sentence to be consistent with other STSs.	Not Applicable	Not Applicable	B 3.7.11 Actions C.1 & C.2 ¶-1, Sentence 1	Not Applicable	Not Applicable

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69	Move Bases for the Note for RA D.1 from the first to third paragraph of discussion, for consistency with WOG STS. Add "the" to WOG STS paragraph.	B 3.7.10 Actions D.1 & D.2 ¶-1 → ¶-3	B 3.7.10 Actions D.1 & D.2 ¶-3, Sentence 1	B 3.7.11 Actions D.1 & D.2 ¶-1 → ¶-3	Not Applicable	Not Applicable
70	Replace "control room" with "CRE."	B 3.7.10 Actions C.1 and C.2 ¶-1, Sentence 1 D.1 & D.2 ¶-2, Sentence 1 E.1 ¶-1, Sentence 1 F.1 ¶-1, Sentence 1	B 3.7.10 Actions C.1 & C.2 ¶-1, Sentence 1 D.1 & D.2 ¶-2, Sentence 1 E.1 ¶-1, Sentence 1 F.1 ¶-1, Sentence 1	B 3.7.11 Actions C.1 & C.2 ¶-1, Sentence 1 D.1 & D.2 ¶-3, Sentence 1 E.1 ¶-1, Sentence 1 F.1 ¶-1, Sentence 1	B 3.7.4 Actions C.1 & C.2 ¶-1, Sentence 1 D.1 & D.2 ¶-4, Sentence 1 E.1 ¶-1, Sentence 1 F.1 & F.2 ¶-2, Sentence 1	B 3.7.3 Actions C.1 & C.2 ¶-1, Sentence 1 D.1 & D.2 ¶-4, Sentence 1 E.1 ¶-1, Sentence 1 F.1 & F.2 ¶-2, Sentence 1
71	Replace "MODE in which the LCO does not apply" with "MODE that minimizes accident risk" to be consistent with other STSs.	B 3.7.10 Actions C.1 and C.2 Sentence 1	Not Applicable	Not Applicable	Not Applicable	Not Applicable
72	Revise Bases to address second Actions Condition, "one or more CREEVS trains [subsystems] inoperable due to an inoperable CRE boundary."	B 3.7.10 Actions E.1 ¶-1, Sentence 1	B 3.7.10 Actions E.1 ¶-1, Sentence 1	B 3.7.11 E.1 ¶-1, Sentence 1	B 3.7.4 Actions F.1 & F.2 ¶-2, Sentence 1	B 3.7.3 Actions F.1 & F.2 ¶-2, Sentence 1

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73	Correct spelling error for "OPDRVs."	Not Applicable	Not Applicable	Not Applicable	B 3.7.4 Actions F.1 & F.2 ¶-3, Sentence 3	Not Applicable
74	no changes	B 3.7.10 SR 3.7.10.1 SR 3.7.10.2	B 3.7.10 SR 3.7.10.1 SR 3.7.10.2	B 3.7.11 SR 3.7.11.1 SR 3.7.11.2	B 3.7.4 SR 3.7.4.1 SR 3.7.4.2	B 3.7.3 SR 3.7.3.1 SR 3.7.3.2
75	Replace Bases sentence for the Frequency.	B 3.7.10 SR 3.7.10.3 ¶-1, Sentence 2	B 3.7.10 SR 3.7.10.3 ¶-1, Sentence 2	B 3.7.11 SR 3.7.11.3 ¶-1, Sentence 2	B 3.7.4 SR 3.7.4.3 ¶-1, Sentence 3	B 3.7.3 SR 3.7.3.3 ¶-1, Sentence 3
76	Replace Bases for CRE differential pressure test with inleakage test.	B 3.7.10 SR 3.7.10.4	B 3.7.10 SR 3.7.10.4	B 3.7.10 SR 3.7.11.4	B 3.7.4 SR 3.7.4.4	B 3.7.3 SR 3.7.3.4
77	Replace "Regulatory Guide 1.52" with "Regulatory Guide 1.196."	B 3.7.10 Reference 3	B 3.7.10 Reference 3	B 3.7.11 Reference 3	B 3.7.4 Reference 5	B 3.7.3 Reference 5
78	Replace "NUREG-800" with "NEI 99-03."	B 3.7.10 Reference 4	B 3.7.10 Reference 4	B 3.7.11 Reference 4	B 3.7.4 Reference 6	B 3.7.3 Reference 6
79	Reference NRC letter on compensatory measures.	B 3.7.10 Reference 5	B 3.7.10 Reference 5	B 3.7.11 Reference 5	B 3.7.4 Reference 7	B 3.7.3 Reference 7
80	Correct error.	Not Applicable	B 3.7.10 Reference 1	B 3.7.11 Reference 1	Not Applicable	Not Applicable
81	Add missing Bases.	B 3.7.10 SR 3.7.10.5	Not Applicable	Not Applicable	Not Applicable	Not Applicable

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. TO FACILITY OPERATING LICENSE NO. [NPF-XX]

AND AMENDMENT NO. TO FACILITY OPERATING LICENSE NO. [NPF-YY]

[NAME OF LICENSEE]

[NAME OF FACILITY]

DOCKET NOS. 50-[XXX] AND 50-[YYY]

1.0 INTRODUCTION

By application dated [ ] as supplemented by letters dated[and], [Name of Licensee] (the licensee) requested changes to the Technical Specifications (TSs) for the [Name of Facility]. The supplements dated [and], provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the Federal Register on [Date (PM/LA will fill in FR information)] (XX FR XXXX).

In NRC Generic Letter 2003-01 (Reference 1), licensees were alerted to findings at facilities that existing technical specification surveillance requirements for the [Control Room Envelope Emergency Ventilation System (CREEVS)] may not be adequate. Specifically, the results of ASTM E741 (Reference 2) tracer gas tests to measure control room envelope (CRE) unfiltered inleakage at facilities indicated that the differential pressure surveillance is not a reliable method for demonstrating CRE boundary operability. Licensees were requested to address existing TSs as follows:

> Provide confirmation that your technical specifications verify the integrity [i.e., operability] of the CRE [boundary], and the assumed [unfiltered] inleakage rates of potentially contaminated air. If you currently have a differential pressure surveillance requirement to demonstrate CRE [boundary] integrity, provide the basis for your conclusion that it remains adequate to demonstrate CRE integrity in light of the ASTM E741 testing results. If you conclude that your differential pressure surveillance requirement is no longer adequate, provide a schedule for: 1) revising the surveillance requirement in your technical specification to reference an acceptable surveillance methodology (e.g., ASTM E741), and 2) making any necessary modifications to your CRE [boundary] so that compliance with your new surveillance requirement can be demonstrated.
>
> If your facility does not currently have a technical specification surveillance requirement for your CRE integrity, explain how and at what frequency you confirm your CRE integrity and why this is adequate to demonstrate CRE integrity.

To promote standardization and to minimize the resources that would be needed to create and process plant-specific amendment applications in response to the concerns described in the generic letter, the industry and the NRC proposed revisions to CRE habitability system requirements contained in the improved standard technical specifications (STSs), NUREGs-1430 to 1434, using the STS change traveler process. This effort culminated in Revision 3 to traveler TSTF-448, "Control Room Habitability," which the NRC staff approved on [month dd, 2006].

Consistent with the traveler as incorporated into NUREG-143xx, the licensee proposed revising action and surveillance requirements in [Specification 3.7.10, "Control Room Envelope Emergency Ventilation System (CREEVS),"] and adding a new administrative controls program, [Specification 5.5.18, "CRE Habitability Program."] The purpose of the changes is to ensure that CRE boundary operability is maintained and verified through effective surveillance and programmatic requirements, and that appropriate remedial actions are taken in the event of an inoperable CRE boundary.

2.0 REGULATORY EVALUATION

2.1 Control Room and Control Room Envelope

Regulatory Guide 1.196, "Control Room Habitability at Light-water Nuclear Power Reactors," Revision 0, May 2003, (Reference 4) uses the term "control room envelope (CRE)" in addition to the term "control room" and defines each term as follows:

Control Room	The plant area, defined in the facility licensing basis, in which actions can be taken to operate the plant safely under normal conditions and to maintain the reactor in a safe condition during accident situations. It encompasses the instrumentation and controls necessary for a safe shutdown of the plant and typically includes the critical document reference file, computer room (if used as an integral part of the emergency response plan), shift supervisor's office, operator wash room and kitchen, and other critical areas to which frequent personnel access or continuous occupancy may be necessary in the event of an accident.
Control Room Envelope	The plant area, defined in the facility licensing basis, that in the event of an emergency, can be isolated from the plant areas and the environment external to the CRE. This area is served by an emergency ventilation system, with the intent of maintaining the habitability of the control room. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident.

Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity At Nuclear Power Reactors," Revision 0, May 2003 (Reference 5), also contains these definitions, but uses the term CRE to mean both. This is because the protected environment provided for operators varies with the nuclear power facility. At some facilities this environment is limited to the control room; at others, it is the CRE. In this safety evaluation, consistent with the proposed changes to the STSs, the CRE will be used to designate both. For consistency, facilities should use the term CRE with an appropriate facility-specific definition derived from the above CRE definition.

2.2 [Control Room Envelope Emergency Ventilation System (CREEVS)]

The [CREEVS] provides a protected environment from which operators can control the unit, during airborne challenges from radioactivity, hazardous chemicals, and fire byproducts, such as fire suppression agents and smoke, during both normal and accident conditions.

The [CREEVS] is designed to maintain a habitable environment in the control room envelope for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a [5 rem whole body dose or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)].

The [CREEVS] consists of two redundant trains [subsystems], each capable of maintaining the habitability of the CRE. The [CREEVS] is considered operable when the individual components necessary to limit operator exposure are operable in both trains [subsystems]. A [CREEVS] train [subsystem] is considered operable when the associated:

! Fan is operable;

! High efficiency particulate air (HEPA) filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions;

! Heater, demister, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained; and

! CRE boundary is operable (the single boundary supports both trains [subsystems]).

The CRE boundary is considered operable when the measured unfiltered air inleakage is less than or equal to the inleakage value assumed by the licensing basis analyses of design basis accident consequences to CRE occupants.

2.3 Regulations Applicable to Control Room Habitability

In Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," General Design Criteria (GDC) 1, 3, 4, 5, and 19 apply to CRE habitability. A summary of these GDCs follows.

! GDC 1, “Quality Standards and Records,” requires that structures, systems, and components (SSCs) important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions performed.

! GDC 3, “Fire Protection,” requires SSCs important to safety be designed and located to minimize the effects of fires and explosions.

! GDC 4, “Environmental and Dynamic Effects Design Bases,” requires SSCs important to safety to be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents (LOCAs).

- GDC 5, “Sharing of Structures, Systems, and Components,” requires that SSCs important to safety not be shared among nuclear power units unless it can be shown that such sharing will not significantly impair their ability to perform their safety functions, including, in the event of an accident in one unit, the orderly shutdown and cooldown of the remaining units.

- GDC 19, “Control Room,” requires that a control room be provided from which actions can be taken to operate the nuclear reactor safely under normal conditions and to maintain the reactor in a safe condition under accident conditions, including a LOCA. Adequate radiation protection is to be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of specified values.

Prior to incorporation of TSTF-448, Revision 3, the STS requirements addressing control room habitability resided only in the following CRE ventilation system specifications:

NUREG-1430, TS 3.7.10, "Control Room Emergency Ventilation System (CREVS);"
NUREG-1431, TS 3.7.10, "Control Room Emergency Filtration System (CREFS);"
NUREG-1432, TS 3.7.11, "Control Room Emergency Air Cleanup System (CREACS);"
NUREG-1433, TS 3.7.4, "[Main Control Room Environmental Control (MCREC)] System;" and
NUREG-1434, TS 3.7.3, "[Control Room Fresh Air (CRFA)] System."

In these specifications, the surveillance requirement associated with demonstrating the operability of the CRE boundary requires verifying that one [CREEVS] train [subsystem] can maintain a positive pressure of $\geq$ [0.125] inches water gauge, relative to the adjacent [turbine building] during the pressurization mode of operation at a makeup flow rate of $\leq$ [3000] cfm. Facilities that pressurize the CRE during the emergency mode of operation of the [CREEVS] have similar surveillance requirements. Other facilities that do not pressurize the CRE have only a system flow rate criterion for the emergency mode of operation. Regardless, the results of ASTM E741 (Reference 2) tracer gas tests to measure CRE unfiltered inleakage at facilities indicated that the differential pressure surveillance (or the alternative surveillance at non-pressurization facilities) is not a reliable method for demonstrating CRE boundary operability. That is, licensees were able to obtain differential pressure and flow measurements satisfying the SR limits even though unfiltered inleakage was determined to exceed the value assumed in the safety analyses.

In addition to an inadequate surveillance requirement, the action requirements of these specifications were ambiguous regarding CRE boundary operability in the event CRE unfiltered inleakage is found to exceed the analysis assumption. The ambiguity stemmed from the view that the CRE boundary may be considered operable but degraded in this condition, and that it would be deemed inoperable only if calculated radiological exposure limits for CRE occupants exceeded a licensing basis limit; e.g., as stated in GDC-19, even while crediting compensatory measures.

NRC Administrative Letter 98-10, “Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety,” (AL 98-10) states that “ the discovery of an improper or inadequate TS value or required action is considered a degraded or nonconforming condition,” which is defined in [NRC Inspection Manual Chapter 9900; see latest guidance in RIS 2005-20 (Reference 3)]. Imposing administrative controls in response to an improper or inadequate TS

is considered an acceptable short-term corrective action. The [NRC] staff expects that, following the imposition of administrative controls, an amendment to the [inadequate] TS, with appropriate justification and schedule, will be submitted in a timely fashion."

Licensees that have found unfiltered inleakage in excess of the limit assumed in the safety analyses and have yet to either reduce the inleakage below the limit or establish a higher bounding limit through re-analysis, have implemented compensatory actions to ensure the safety of CRE occupants, pending final resolution of the condition, consistent with RIS 2005-20. However, based on GL 2003-01 and AL 98-10, the staff expects each licensee to propose TS changes that include a surveillance to periodically measure CRE unfiltered inleakage in order to satisfy 10 CFR 50.36(c)(3), which requires a facility's TSs to include surveillance requirements, which it defines as "requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that limiting conditions for operation will be met." (Emphasis added.)

The NRC staff also expects facilities to propose unambiguous remedial actions, consistent with 10 CFR 50.36(c)(2), for the condition of not meeting the limiting condition for operation (LCO) due to an inoperable CRE boundary. The action requirements should specify a reasonable completion time to restore conformance to the LCO before requiring a facility to be shut down. This completion time should be based on the benefits of implementing mitigating actions to ensure CRE occupant safety and sufficient time to resolve most problems anticipated with the CRE boundary, while minimizing the chance that operators in the CRE will need to use mitigating actions during accident conditions.

2.4 Adoption of TSTF-448, Revision 3, by [facility name]

Adoption of TSTF-448, Revision 3, will assure that the facility's TS limiting condition for operation (LCO) for the [CREEVS] is met by demonstrating unfiltered leakage into the CRE is within limit; i.e., the operability of the CRE boundary. In support of this surveillance, which specifies a relatively long test interval (frequency) of 6 years, TSTF-448 also adds TS administrative controls to assure the habitability of the CRE between performances of the ASTM E741 test. In addition, adoption of TSTF-448 will establish clearly stated and reasonable required actions in the event CRE unfiltered inleakage is found to exceed the analysis assumption.

The changes made by TSTF-448 to the STS requirements for the [CREEVS] and the CRE boundary conform to 10 CFR 50.36(c)(2) and 10 CFR 50.36(c)(3). Their adoption will better assure that [facility name]'s CRE will remain habitable during normal operation and design basis accident conditions. These changes are, therefore, acceptable from a regulatory standpoint.

3.0 TECHNICAL EVALUATION

The NRC staff reviewed the proposed changes against the corresponding changes made to the STSs by TSTF-448, Revision 3, which the NRC staff has found to satisfy applicable regulatory requirements, as described above in Section 2.0. [The emergency operational mode of the [CREEVS] at [facility name] [pressurizes] [isolates but does not pressurize] the CRE to minimize unfiltered air inleakage.] The proposed changes are consistent with this design.

3.1 Proposed Changes

The proposed amendment would stengthen CRE habitability TS requirements by changing TS [3.7.10, CREEVS] and adding a new TS administrative controls program on CRE habitability. Accompanying the proposed TS changes are appropriate conforming technical changes to the TS Bases. The proposed revision to the Bases also includes editorial and administrative changes to reflect applicable changes to the corresponding STS Bases, which were made to improve clarity, conform with the latest information and references, correct factual errors, and achieve more consistency among the STS NUREGs. [Except for plant specific differences, all] of these changes are consistent with STSs as revised by TSTF-448, Revision 3.

The NRC staff compared the proposed TS changes to the STSs and the STS markups and evaluations in TSTF-448. [The staff verified that differences from the STSs were adequately justified on the basis of plant-specific design or retention of current licensing basis.] The NRC staff also reviewed the proposed changes to the TS Bases for consistency with the STS Bases and the plant-specific design and licensing bases, although approval of the Bases is not a condition for accepting the proposed amendment. However, TS 5.5.[11], "TS Bases Control Program," provides assurance that the licensee has established and will maintain the adequacy of the Bases.

3.2 Editorial Changes

The licensee proposed editorial changes to TS [3.7.10, "CREEVS,"] to establish standard terminology, such as "control room envelope (CRE)" in place of "control room," except for the plant-specific name for the [CREEVS], and "radiological, chemical, and smoke hazards (or challenges)" in place of various phrases to describe the hazards that CRE occupants are protected from by the [CREEVS]. [The licensee also proposed to correct a typographical error by replacing "irradiate" with "irradiated" in TS 3.7.10 Condition E.] These changes improve the usability and quality of the presentation of the TSs, have no impact on safety, and therefore, are acceptable.

3.3 TS [3.7.10, CREEVS]

< Evaluation 1 - for facilities that have adopted the [CREEVS] TS LCO Note and Action B of TSTF-287, Rev. 5 >

The licensee proposed to revise the action requirements of TS [3.7.10, "CREEVS,"] to acknowledge that an inoperable CRE boundary, depending upon the location of the associated degradation, could cause just one, instead of both [CREEVS] [trains] to be inoperable. This is accomplished by revising Condition A to exclude Condition B, and revising Condition B to address one or more [CREEVS] [trains], as follows:

Condition A	One [CREEVS] [train] inoperable for reasons other than Condition B.
Condition B	One or more [CREEVS] [trains] inoperable due to inoperable CRE boundary in MODE 1, 2, [or] 3[, or 4].

This change clarifies how to apply the action requirements in the event just one [CREEVS] [train] is unable to ensure CRE occupant safety within licensing basis limits because of an

inoperable CRE boundary. It enhances the usability of Conditions A and B with a presentation that is more consistent with the intent of the existing requirements. This change is an administrative change because it neither reduces nor increases the existing action requirements, and, therefore, is acceptable.

The licensee proposed to replace existing Required Action B.1, "Restore control room boundary to OPERABLE status," which has a 24-hour Completion Time, with Required Action B.1, to immediately initiate action to implement mitigating actions; Required Action B.2, to verify, within 24 hours, that in the event of a DBA, CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke; and Required Action B.3, to restore CRE boundary to OPERABLE status within 60 days.

The 24-hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 60 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. The 60 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary. Therefore, proposed Action B is acceptable.

< End of Evaluation 1 >

< Evaluation 2 - for facilities that have <u>not yet</u> adopted the [CREEVS] TS LCO Note and Action B of TSTF-287, Rev. 5 >

The licensee proposed to establish new action requirements in TS [3.7.10, "CREEVS,"] for an inoperable CRE boundary. Currently, if one [CREEVS] [train] is determined to be inoperable due to an inoperable CRE boundary, existing Action A would apply and require restoring the [train] (and the CRE boundary) to operable status in 7 days. If two [trains] are determined to be inoperable due to an inoperable CRE boundary, existing Action [E] specifies no time to restore the [trains] (and the CRE boundary) to operable status, but requires immediate entry into the shutdown actions of LCO 3.0.3. These existing Actions are more restrictive than would be appropriate in situations for which CRE occupant implementation of compensatory measures or mitigating actions would temporarily afford adequate CRE occupant protection from postulated airborne hazards. To account for such situations, the licensee proposed to revise the action requirements to add a new Condition B, "One or more [CREEVS] [trains] inoperable due to inoperable CRE boundary in MODE 1, 2, [or] 3[, or 4]." New Action B would allow 60 days to restore the CRE boundary (and consequently, the affected [CREEVS] [trains]) to operable status, provided that mitigating actions are immediately implemented and within 24 hours are verified to ensure, that in the event of a DBA, CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke.

The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 60 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to

implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. The 60 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary. Therefore, proposed Action B is acceptable.

To distinguish new Condition B from the existing condition for one [CREEVS] [train] inoperable, Condition A is revised to state, "One [CREEVS] [train] inoperable for reasons other than Condition B." To distinguish new Condition B from the existing condition for two [CREEVS] [trains] inoperable, Condition [E] (renumbered as Condition [F]) is revised to state, "Two [CREEVS] [trains] inoperable during MODE 1, 2, [or] 3[, or 4] for reasons other than Condition B." The changes to existing Conditions A and [E] are less restrictive because these Conditions will no longer apply in the event one or two [CREEVS] [trains] are inoperable due to an inoperable CRE boundary during unit operation in Mode 1, 2, [or] 3[, or 4]. This is acceptable because the new Action B establishes adequate remedial measures in this condition. With the addition of a new Condition B, existing Conditions B, C, D, and E are re-designated C, D, E, and F, respectively.

The licensee also proposed to modify the [CREEVS] LCO by adding a note allowing the CRE boundary to be opened intermittently under administrative controls. As stated in the LCO Bases, this Note "only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with operators in the CRE. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE isolation is indicated." The allowance of this note is acceptable because the administrative controls will ensure that the opening will be quickly sealed to maintain the validity of the licensing basis analyses of DBA consequences.

< End of Evaluation 2 >

< Evaluation 3 - for B&W CREVS TS >

The existing TS 3.7.10 condition for two control room emergency ventilation system (CREVS) trains inoperable during refueling, Condition E, is revised to also apply during plant operation in Modes 5 and 6. It will state, "Two CREVS trains inoperable [in MODE 5 or 6, or] during movement of [recently] irradiated fuel assemblies." This change clarifies the applicability of this condition for dual unit facilities when the unit is in Mode 5 or 6, and the other unit is moving [recently] irradiated fuel assemblies. Similarly, Condition D, for failing to meet Action A during movement of [recently] irradiated fuel assemblies, is revised to also apply in Modes 5 and 6. These changes are administrative because they only clarify the intended applicability of the existing conditions, and are, therefore, acceptable. Required Actions D.2 and E.1, to immediately suspend movement of [recently] irradiated fuel assemblies, ensures that a fuel handling accident cannot occur while the unit is in these conditions. With only one CREVS train inoperable, Required Action D.1 specifies an alternative to immediately suspending fuel movement; it requires immediately placing the operable CREVS train in its emergency operating alignment, or mode, to minimize the chance the train will fail to properly switch to this

mode if called upon in response to a fuel handling accident, or other airborne hazards challenge.

< End of Evaluation 3 >

< Evaluation 4 - for B&W, CE, and W [CREEVS] TSs >

The licensee proposed to add a new actions condition to TS 3.7.1[0] that states, "One or more [CREEVS] trains inoperable due to an inoperable CRE boundary [in Mode 5 or 6, or] during movement of [recently] irradiated fuel assemblies." The specified Required Action for this condition is the same as for proposed Condition E, and thus the new condition is stated in Condition E using the logical connector "OR" in accordance with the STS writer's guide. The practical result of this presentation is the same as specifying two separately numbered actions conditions. It's advantage is avoiding having an additional numbered row in the Actions table. This actions condition is needed because proposed Action B will only apply in Modes 1, 2, 3, and 4. As such, this change will ensure that the Actions table continues to specify a condition for an inoperable CRE boundary during Modes 5 and 6 and during refueling. Therefore, this change is administrative and acceptable.

< End of Evaluation 4 >

< Evaluation 5 - for BWR4 and BWR6 [CREEVS] TSs >

The licensee proposed to add a new actions condition to TS 3.7.[4] that states, "One or more [CREEVS] subsystems inoperable due to an inoperable CRE boundary during movement of [recently] irradiated fuel assemblies in the [[primary or] secondary] containment or during OPDRVs." The specified Required Actions for this condition are the same as for existing Condition F, and thus the new condition is stated in Condition F using the logical connector "OR" in accordance with the STS writer's guide. The practical result of this presentation is the same as specifying two separately numbered actions conditions. It's advantage is avoiding having an additional numbered row in the Actions table. This actions condition is needed because proposed Action B will only apply in Modes 1, 2, 3, and 4. As such, this change will ensure that the Actions table continues to specify a condition for an inoperable CRE boundary during refueling and OPDRVs. Therefore, this change is administrative and acceptable.

< End of Evaluation 5 >

< Evaluation 6 - for facilities that have a CRE pressurization surveillance requirement >

In the [emergency radiation state] of operation, the [CREEVS] isolates unfiltered ventilation air supply intakes, filters the emergency ventilation air supply to the CRE, and pressurizes the CRE to minimize unfiltered air inleakage past the CRE boundary. The licensee proposed to delete the CRE pressurization surveillance requirement (SR). This SR requires verifying that one [CREEVS] [train][subsystem], operating in the [emergency radiation state], can maintain a pressure of $\geq$ [0.125] inches water gauge, relative to the adjacent [turbine building] during the pressurization mode of operation at a makeup flow rate of $\leq$ [3000] cfm. The deletion of this SR is proposed because measurements of unfiltered air leakage into the CRE at numerous reactor facilities demonstrated that a basic assumption of this SR, an essentially leak-tight CRE boundary, was incorrect for most facilities. Hence, meeting this SR by achieving the required

CRE pressure is not necessarily a conclusive indication of CRE boundary leak tightness, i.e., CRE boundary operability. In its response to GL 2003-01, [dated month, dd, yyyy], the licensee reported that it had determined that the [facility name] CRE pressurization surveillance, SR 3.7.[10].[4], was inadequate to demonstrate the operability of the CRE boundary, and proposed to replace it with an inleakage measurement SR and a CRE Habitability Program in TS Section 5.5, in accordance with the approved version of TSTF-448. Based on the adoption of TSTF-448, the licensee's proposal to delete SR 3.7.[10].[4] is acceptable.

< End of Evaluation 6 >

The proposed CRE inleakage measurement SR states, "Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program." The CRE Habitability Program TS, proposed TS 5.5.[18], requires that the program include "Requirements for determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Regulatory Guide 1.197, Revision 0." This guidance references ASTM E 741 (Reference 2) as an acceptable method for ascertaining the unfiltered leakage into the CRE. The licensee has[, however, not] proposed to follow this method. [The NRC staff reviewed the licensee's proposed alternative method for measuring CRE inleakage to ensure it meets the criteria for such methods given in RG 1.197.] [*Insert plant-specific technical evaluation by the staff of the alternative method.*] [The NRC staff finds that the proposed alternative method is adequate for satisfying the criteria of RG 1.197.] Therefore, the proposed CRE inleakage measurement SR is acceptable.

3.4 TS 5.5.[18], CRE Habitability Program

The proposed administrative controls program TS, in combination with SR 3.7.[10].[4], are intended to ensure the operability of the CRE boundary, which as part of an operable [CREEVS] will ensure that CRE habitability is maintained such that CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of [5 rem whole body or its equivalent to any part of the body] [5 rem total effective dose equivalent (TEDE)] for the duration of the accident. The proposed administrative controls program TS is consistent with the model program TS in TSTF-448. The model program TS requires a CRE Habitability Program to be established and implemented in accordance with the guidelines contained in Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," Revision 0, May 2003, Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and Regulatory Guide 1.78, "Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," Revision 1, December 2001. The licensee's proposed TS contains [no] [the following] exceptions to these guidelines.

[*Insert plant-specific evaluation of licensee's proposed exceptions.*]

The proposed administrative controls program TS requires that the program include the following elements: [plant-specific] definitions of CRE and CRE boundary; requirements for CRE configuration control and preventive maintenance; requirements for periodically assessing

CRE habitability and measuring unfiltered air inleakage; requirements for measuring CRE pressure with respect to all areas adjacent to the CRE boundary at designated locations for use in assessing the CRE boundary between inleakage tests; and the quantitative limits on unfiltered inleakage. The licensee has proposed to establish a TS that requires a CRE Habitability Program that contains these elements. The staff finds such a program will ensure the operability of the CRE boundary and habitability of the CRE. Therefore, TS 5.5.[18], which is consistent with the model program TS approved by the NRC staff in TSTF-448, Rev. 3, is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the [Name of State] State official was notified of the proposed issuance of the amendment. The State official had [no] comments. [If comments were provided, they should be addressed here].

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (XX FR XXXX). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. NRC Generic Letter 2003-01, "Control Room Habitability," dated June 12, 2003, (GL 2003-01).

2. ASTM E 741 - 00, "Standard Test Method for Determining Air Change in a Single Zone by Means of a Tracer Gas Dilution," 2000, (ASTM E741).

3. NRC Regulatory Issue Summary 2005-20: Revision to Guidance Formerly Contained in NRC Generic Letter 91-18," Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," dated September 26, 2005 (RIS 2005-20).

4. Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," dated May 2003.

5. Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003.

6. NEI 99-03, Revision 1, "Control Room Habitability Assessment Guidance" dated March 2003.

Principal Contributor:

Date: